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GREG PHILLINGANES

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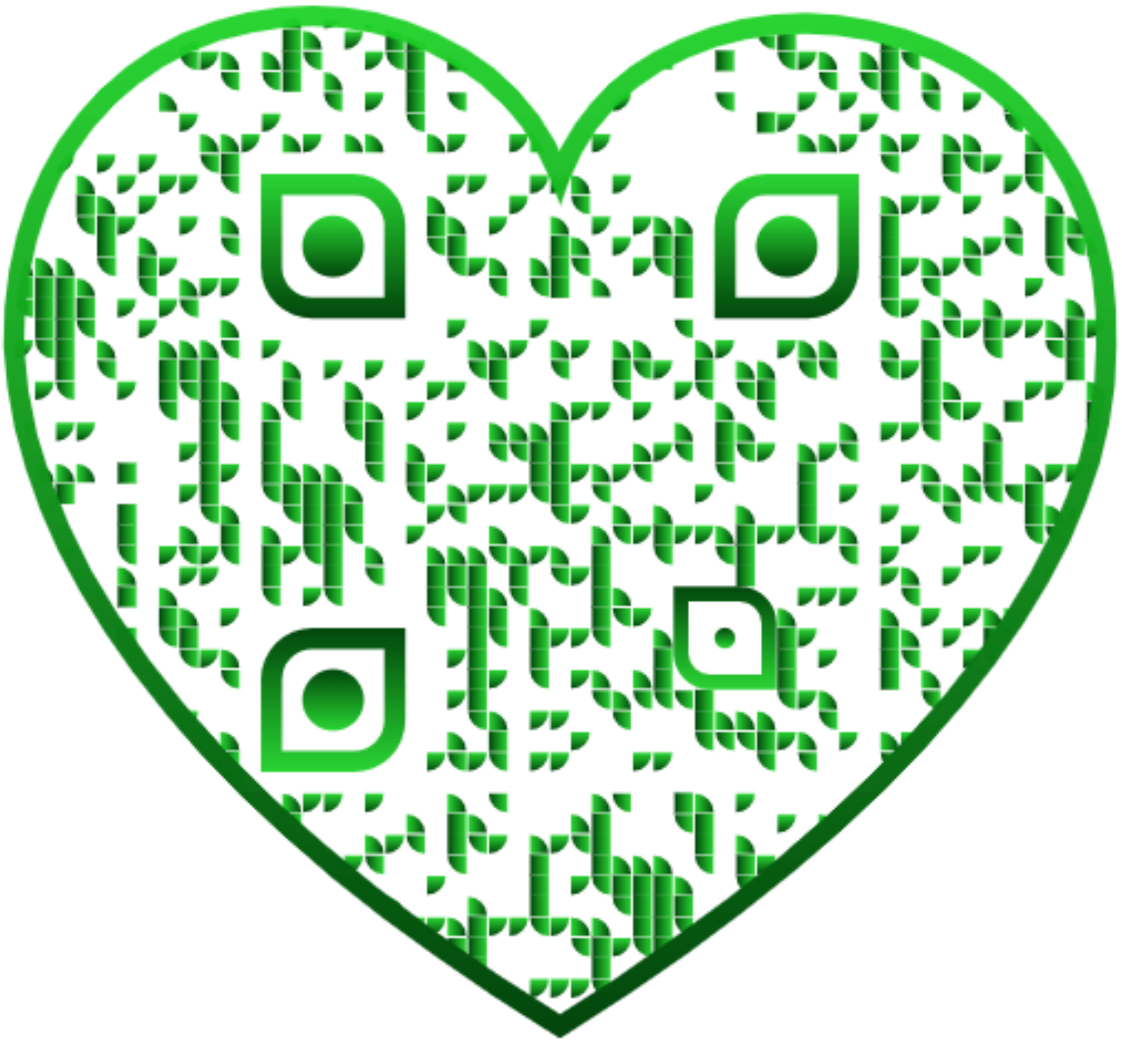

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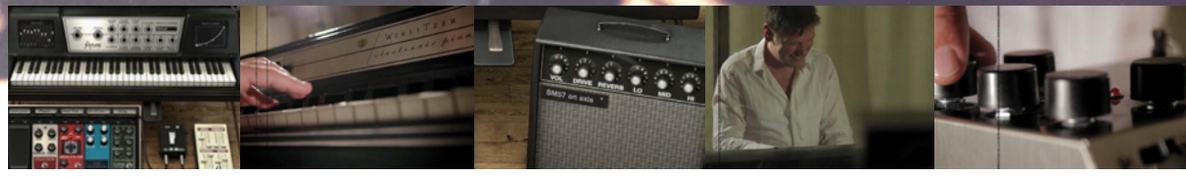

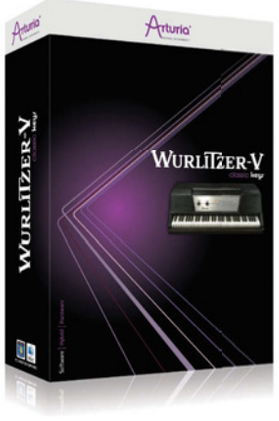

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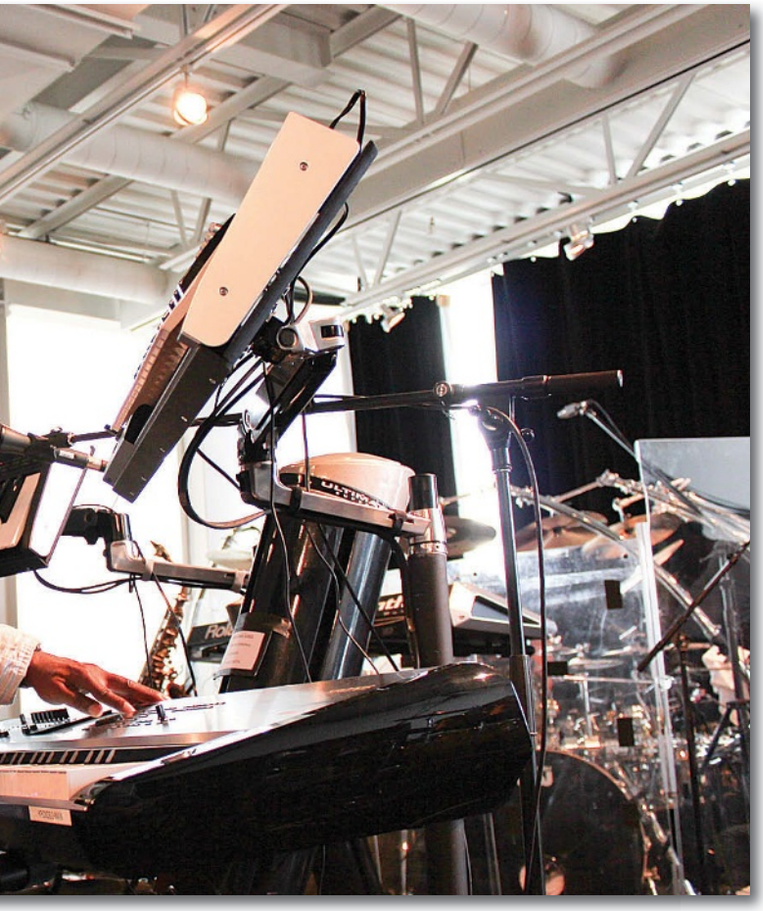

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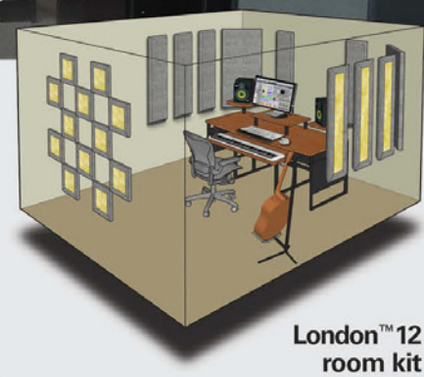

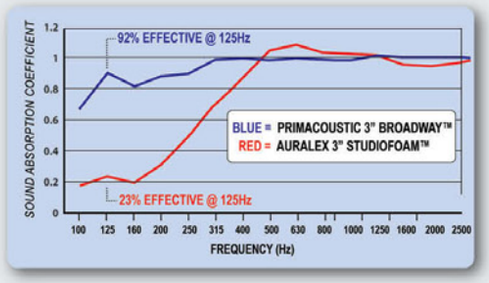

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Editor's Note

I usually don't gush about what's in the issue here. If you want to know that, you can just read . . . the issue, right? This time, I have to share my excitement that we've snagged Greg Phillinganes as this month's cover artist. See, if you play keyboards and aspire to rock-star status, you get to pick from a manageable handful of archetypes, each with its ostensible demigod: Keith Emerson for prog shredders; Billy Joel for singer/songwriters; McConnell or Medeski for jam bands; Stevie Wonder for—okay, he transcends all archetypes, but you get the idea. (You may notice I didn't touch jazz. No need to head-butt a beehive.)

Then there's Greg Phillinganes. The first-call hired gun who can play *anything* at the drop of a hat. The one who's just as comfortable making a piano sound like a symphony as he is making a stack of synthesizers sound like the song did on the record. The one who can play circles around most of the limelight artists you can name, yet who's always been at home as the guy behind the guy. The one who can play more songs from memory than will fit on your hard drive. The bar by which success as a contemporary keyboardist is measured. His archetype? The Ultimate Professional.

Stephen Fortner

Stephen Fortner
Editor

Jerry Kovarsky's popular "Art of Synth Soloing" column has the month off. Never fear—it returns next month in our August 2012 issue. —Ed.

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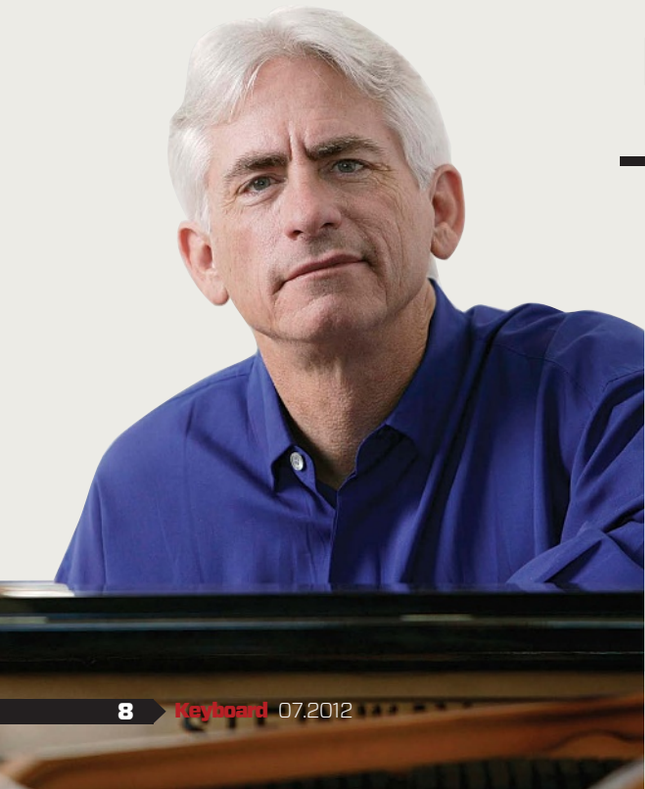

SONY MEDIA

My First *Fender Rhodes*

David Benoit

Before becoming the renowned jazz fusion artist he is today, David Benoit started his career straight out of high school, playing in the upstairs lounge of a Polynesian restaurant in Redondo Beach, California. "My only keyboard was a beige particle-board Wurlitzer, which wasn't cutting it," he says. "I started hearing about the Fender Rhodes. I loved the sound and was fascinated by how it looked like a Fender guitar amp, only with keys!" With parental help, David purchased his first Rhodes Suitcase 73. "I set it up next to my bed and practically slept with it," he recalls. "I loved the smell of the Tolex and, even better, how it sounded with the stereo vibrato. It lived in my Volkswagon Squareback and my Dad was nice enough to help me bring it up the stairs for the Polynesian gig. That thing was *heavy*." To hear David's chops on the Rhodes (and other keyboards), check out his latest album, *Conversation*. | **benoit.com** | Michael Gallant

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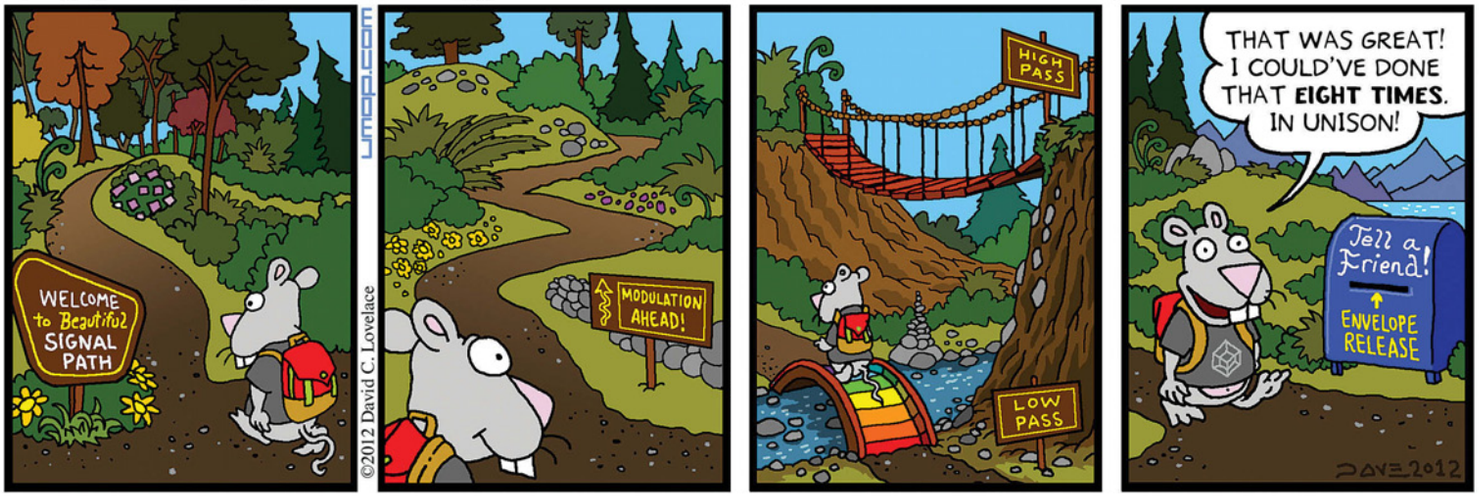


Dig My Rig

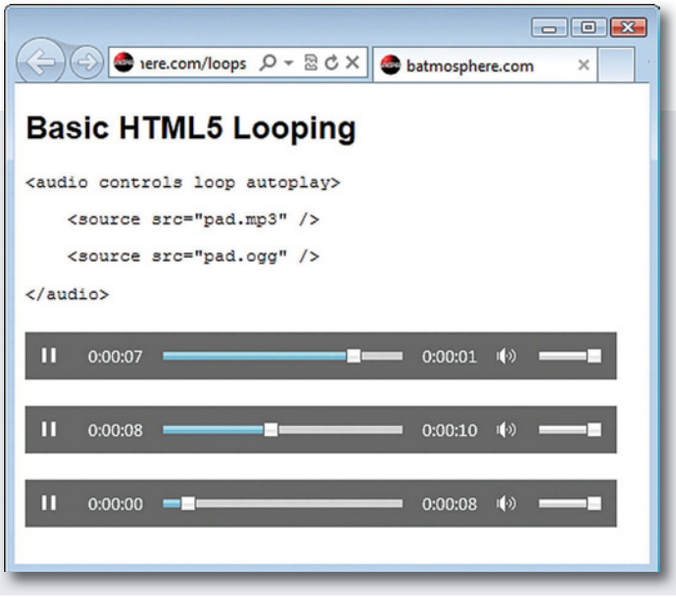
A year ago, I decided to build the live controller of my dreams. I used stock components, it weighs about 80 pounds, the shell is flamed walnut, and the cost was under $1,200 (Laptop, iPad, and plug-ins not included). The Hammond drawbar deck is from a 1968 B-3 and was MIDI'ed by Alex Smith (alkex.com)—*huge* kudos to him as the drawbars make it feel real. The iPad runs the free MIDItouch app for the creation of control surfaces. Virtual instruments include VB3, Applied Acoustics Lounge Lizard, and multiple instances of Cakewalk Dimension Pro, IK SampleTank, and Arturia Minimoog V. The keyboards are from Fatar Studio 610 controllers (older but wonderful, and easily had for about $75 each these days). Eight weeks of burn-in produced zero failures, and iPad-to-laptop mapping is via the amazing Plogue Bidule software—I can map 40 virtual instruments in any combination to the three manuals. I'm in heaven. **Mike Petit, Annapolis, MD, via email**

Key Secrets

Ambient 4: Online

Back in the '80s, Brian Eno created cool ambient installations by running four auto-reverse cassette decks at once. Each held a different length tape, so listeners would never hear the same mix of sound layers twice. You can easily create this effect on a webpage by looping multiple sound files with the HTML5 audio tag. Here's the code to loop a single sound—rinse and repeat as necessary.

I include both MP3 and Ogg Vorbis because major browsers support one or the other. Firefox needs additional code to loop files, so this technique is best suited for your own installations. Hear it at batmosphere.com/loops. David Battino



NEW GEAR

BY STEPHEN FORTNER

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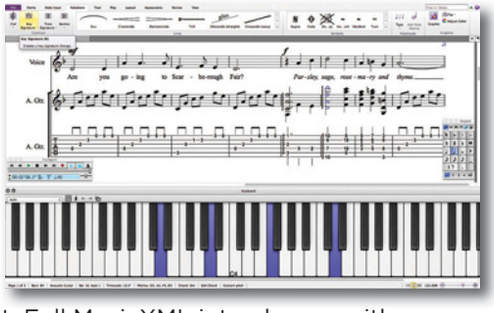

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Greg Phillinganes

POP MUSIC'S MOST REVERED SESSION AND TOURING KEYBOARDIST ON A LIFE REFLECTED IN MUSIC

BY JON REGEN

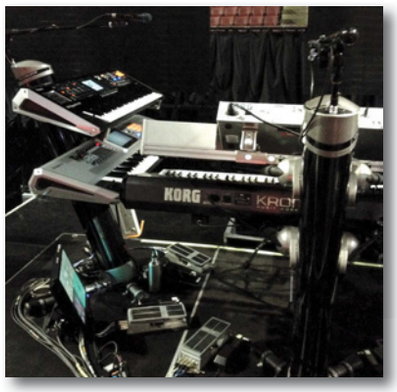
"IF YOU HAVE TO DO THE SAME THING NIGHT AFTER NIGHT, THIS IS THE thing to do," legendary keyboardist Greg Phillinganes says of Cirque du Soleil's massive new *Michael Jackson: The Immortal* tour, for which he's musical director. "The music here has parameters, but there's freedom inside of those parameters. That keeps things exciting, and all of us from feeling like tape recorders every night."

From work with Stevie Wonder while still in his teens, to tours and recordings with Quincy Jones, Michael Jackson, Eric Clapton, and Toto, Phillinganes' massive discography reads like a "Who's Who" of pop music, encompassing four decades. From jazz piano parts to levitating synth leads, Phillinganes can and does cover it all. By some metrics, he's the most prolific and hired "sideman" (in his case, the term seems absurdly diminutive) ever. Between the gigs he gets and his superhuman chops and photographic musical memory, he's truly the keyboard player we all aspire to be.

How did you get your musical start?
I got introduced to music at the age of two, in my hometown of Detroit. My next-door neighbors had a piano in their basement, and I'd go there and spend long periods of time playing by ear. When my Mom finally found out where I was going and what I was doing for hours on end, she very sweetly decided to go downtown to a store called Grinnell's and buy me a beautiful, ornate upright piano. It was *huge*, but then again, everything is when you're two years old! I climbed onto that thing, and from that point forward, it became my new best friend.

Did you take formal piano lessons?
Yes, at around six. They became a constant in my life. I started with an entry-level instructor, then graduated to a more intermediate one. But soon into my studies with her, I started paying less and less attention to what she was teaching me. I just always wanted to do my own thing. Sensing that I needed discipline more than anything else, my Mom managed to hook me up with a wonderful teacher named Misha Kotler, who was the pianist for the Detroit Symphony. He was a no-nonsense Russian Jewish guy who could crack a pane of glass with one finger. He was a complete badass, and he cooled my attitude out immediately. I studied with him well into my teens.

What kinds of things were you studying with him?
I was studying technique and classical repertoire. He taught me a certain way of playing that I still use to this day: a sense of *evenness* where your wrists aren't loose or moving up and down. It's a totally linear way of playing, where there's even movement in both hands so your wrists stay perfectly still. Misha would take two fingers and weigh them down on my wrists to keep them from moving. He instilled a sense of dexterity and definition in my playing. If I'm known for my speed and precision, it's probably due to Misha more than anything else.



Center: Greg with his Toto rig in 2006. Surrounding: Various stages of work on Cirque du Soleil's *Michael Jackson: The Immortal* tour.

COURTESY OF KORG USA

PHOTOS BY TINA GUO AND JON REGEN

Besides your classical studies, what were you listening to at that time?
Well, this was the early 1970s. I was in high school and got introduced to jazz by one of my best friends, Kamau Kenyatta. We'd go to his house after school and listen to *everybody*. From horn players like John Coltrane and Sidney Bechet, to bass players, to drummers like Art Blakey, and everyone in between. And of course, we listened to the *keyboard* players: Herbie, Chick, Monk, and on and on. We learned how to decipher the differences between each player. Kamau was brilliant. He was like another teacher to me, and the person responsible for me understanding jazz. I was also a pop head, digging everything from the Beatles and the Rolling Stones to all of the Motown and Stax stuff. From Creedence Clearwater Revival and Crosby, Stills and Nash, to Marvin Gaye and the Temptations—I just absorbed it all.

What keyboards did you have at that time?
I was mostly playing Fender Rhodes, but I didn't have my own at the time so I borrowed one from another guy in my band. Then in 1974, a band member made the mistake of lending me his ARP Odyssey for the entire summer. I plugged that thing in and from that point, I don't remember going outside. I literally ate and slept with it. My poor neighbors had to contend with a constant stream of alien noises emanating from my bedroom!

When did you know you wanted to play keyboards for a living?
A pivotal moment was when I was eight years old and saw the Beatles on Ed Sullivan. That sealed the deal for me, as did the Monkees and the Jackson 5. But the real answer to that question? Stevie Wonder.

In fact, your "big break" was with Stevie. What was that like?
Do you know that saying "God fulfills your dreams because He gives them to you in the first place?" It's true. All my life I loved everything Stevie Wonder did, and had posters of him on my walls. When I was 18, a good buddy who was the drummer in one of the bands I was in, was asked to audition for Stevie. I was thrilled for him. But to show you the kind of friend he was, he insisted that I record some things onto a cassette for him to take to Stevie. I obliged, and he left the next day for the audition. Days passed—what felt like an eternity—and one morning, he called me and said, "Stevie wants to see you in New York." Needless to say, I was more than a little excited!

The day I was scheduled to fly to New York, I was asked to stop by Stevie's house in Detroit and pick up one of his brothers to take with me to the airport. Now, everybody knew where Stevie Wonder lived, but here I was, actually *in* his house. So we flew to New York, and I eventually went to the studio, the original Hit Factory. I waited on pins and needles, trying to keep my cool. After what seemed like hours, the elevator doors opened and Stevie came bobbing out. We shook hands and talked, and he told me he liked my sound. This was one of the single greatest moments of my life. Then he started teaching me a new song of his, while I tried to hang on as best as I could!

Phillinganes' Faves

Greg Recalls Great Musical Moments

On James Ingram's "One Hundred Ways"

One of the greatest compliments Quincy Jones ever gave me was that to this day, this is one of his favorite solos. I recorded it at something like three in the morning. I was asleep under the piano during the session, and someone woke me up and said, "Hey, it's your turn." Quincy said, "Right, you're gonna play a solo." And this was the first thing that came out of me. Quincy loves it because it was basically my subconscious mind at work.

On Donald Fagen's *The Nightfly*

I'd heard horror stories about how demanding Donald could be, but working with him was an absolute thrill. The first song I played on was "I.G.Y." Donald had a drum machine he called Wendel [*A one-of-a-kind digital sampler/sequencer developed by engineer Roger Nichols. —Ed.*] and we started recording with just Wendel and myself. I was playing Rhodes, and the song was so hauntingly beautiful, I actually remember messing up intentionally, just so I could go back and play it again. At the end of "Maxine," I was so taken with the song, I felt compelled to blaze all over the last set of chords on the ending on piano. I just couldn't help myself. Donald also taught me how to conceptualize playing an upright bass part on a synthesizer by telling me, "Take a breath between every note."

On Eric Clapton

I'll never forget playing and singing things like "Layla," "White Room," and "In the Air Tonight" with Eric, Phil Collins, and Nathan East. We played Madison Square Garden, the Forum, and other arenas around the world and just slayed it. It was an absolute thrill for me. I think Nate and I really brought a new dimension to Eric's sound, adding elements of Jazz and Gospel at just the right moments. We played classic Clapton tunes like "Crossroads" and "Badge," but in a completely fresh and updated way.

On Herbie Hancock

I'd produced a couple of tracks off Herbie's album *Possibilities*, including his remake of "I Just Called To Say I Love You." Herbie was upstairs playing the Fazioli grand, while I was in the control room saying, "Yeah, can we try that again?" It was surreal and beautiful at the same time. But then to be called and asked not just to be his side keyboardist, but also sing in the show with him? It was ridiculous. Night after night, his playing was jaw-dropping. One thing that amazed me was that Herbie actually still practices.

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The next day, I met the rest of the band for the formal audition. After the audition was over, I was in the car with Stevie. He said, "How does it feel to be a member of Wonderlove?" That was the name of his band. Now, I'd heard stories about how Stevie could be a practical joker, so I asked him, "Are you serious?" And he said, "Of course." So I said, "Would you mind telling my Mom that?" I figured, *he's not gonna joke around with Mom!* And he said, "Sure." So when we got back to the studio, I dialed my house and gave him the phone. My Mom picked up, and the first voice she heard was Stevie Wonder telling her he wanted her son to be in his band! This was a month before I turned 19, and a month before Stevie turned 25. That's how young *he* still was. I ended up staying with Stevie for almost four years.

Did your drummer friend get the gig?
Actually, no, but there's a good ending to the story. He ended up playing with [jazz vibraphonist] Roy Ayers, and later, countless other famous musicians. His name is Ricky Lawson. [*Lawson has since become an acclaimed drummer and played with Michael Jackson, Eric Clapton, Whitney Houston, Steely Dan, and others. —Ed.*]

What kinds of keyboards were you using with Stevie at that time?
I played everything Stevie played. In a typical show, Wonderlove would play for about 20 minutes before Stevie came out. But the keyboard player got to sit in *his* spot, right in the front and center. I played Rhodes, Clavinet, and a bunch of synths. Only Stevie played the voice box, though.

Was Stevie Wonder the first artist that you appeared with on record?
Actually, the first was a Roy Ayers album called *Everybody Loves the Sunshine*, released in 1976. Then Stevie's *Songs in the Key of Life* came out, and I ended up playing on "Isn't She Lovely," "Saturn," "Contusion," and "Joy Inside My Tears."

So Stevie was the gig that changed everything for you?
I like to say I went to U of W: the University of Wonder. Back then, we'd rehearse for hours, and Stevie would play all kinds of things. He'd weave in and out of reggae, jazz, country, Beatles, classical—*everything*. He helped me hone in on the essence of each genre of music. The thought was, "Well, *he* plays keyboards, so if you do the same thing, how good must *you* be?" From there, I think word got out about the *consistency* of what I do, so I got to branch out and do other gigs and sessions.

Were there other pivotal figures in your musical ascent?
Quincy Jones. The first time I met him, I was still in school. I played hooky just to go meet him in downtown Detroit. But the funny thing about Quincy is, he *remembers* things like that. I met him again later after I'd moved to Los Angeles. I had a roommate, who was also a keyboardist, named Mark Johnson, who had started working with Quincy on a project for the Brothers Johnson. [*No relation. —Ed.*] He told Quincy about me, and I started working with him from that point forward.

Was Quincy your entry point into working with Michael Jackson?
Yes, but before Quincy started producing Michael's solo albums, a buddy of mine named Bobby Colomby called me one day and asked me, "How do you feel about arranging?" Now, even though I'd done some, I was still a bit timid about my abilities. Bobby said to me, "You should do more arranging." And I replied, "Well, I don't know." He then replied, "Let me put it this way. You *will* do more arranging. And here's who you're going to do it with!" The next thing I knew, I was in a room with the Jackson brothers, doing rhythm arrangements for the *Destiny* album. The first song I worked on was "Blame It on the Boogie."

Greg's Gear

JON REGEN

"I'm a Korg artist, and on the *Immortal* tour I'm using the Kronos and the M3. I like the sounds on the Kronos, and I find it to be a step up from the OASYS, which I got a lot of mileage out of touring with Herbie Hancock," says Greg Phillinganes. "There's very little outboard gear on this tour. Just about all of the sounds I'm using are in the four keyboards you see: the two Korgs, as well as a Roland Fantom-G7 and V-Synth GT. My keyboard tech Brian Girard did a brilliant job of assembling sounds. I use the set list function on the Kronos to line up the elements for every song, and I can step through it in order. The Kronos controls program changes for the other three keyboards. As musicians, we love to talk about the latest gear, but I've always believed that it's not the keyboard you play, it's what you do with it. People are always surprised that when it comes to synths, 99 percent of the time I use stock sounds. I love to spend time going through the sound banks in a given keyboard, playing little snippets based on the character of each sound."

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How did your work with Michael Jackson develop after that?

I had worked on the Jackson 5's *Triumph* album after *Destiny*. After that, Quincy asked me to be involved in Michael's solo album *Off the Wall*. I played on virtually all of that album, and things just took off from there.

Then recording with Michael Jackson led to touring?

I'll never forget the way Michael asked me to tour with him. We were working on the *Bad* album, and from time to time he'd say, "Um, you really enjoy performing, right?" And I'd say, "Yeah. It's great." I didn't really think anything of it. Time would pass, and he'd say to me, "Um, you like performing *live*, right?" I'd reply, "Yeah, it's great." More time would pass, and he'd then say to me, "Um, you really like live *audiences*, right?" This went on and on, until it finally dawned on me. I said to him, "You want me to *tour* with you, don't you?" And he said, "Yeah." The next thing I knew, I was the musical director for the *Bad* tour, which was *huge*.

Michael did something really sweet for me that I'll never forget. The running joke at that time was that I was a famous keyboard player but I didn't own a Rhodes of my own. After we finished the *Destiny* album, I was at home minding my own business when my doorbell rang. A guy driving a white truck asked me, "Are you Greg Phillinganes? I have something for you." He opened the truck and took out a giant case with a Rhodes Suitcase model in it. Attached was a note from Michael: "I knew you didn't have one of these so I thought you'd like one." I still have that Rhodes, and I recently had it completely redone. It sounds amazing.

How did you wind up musical director of the *Immortal* show?

A few years ago, John McClain from the Jackson estate called me and said, "You're doing this," and that was pretty much it. I'd turned down other Michael Jackson tribute shows because I thought they weren't of the quality they needed to be. But when I learned that the *Immortal* was sanctioned by Michael's estate and involved Cirque du Soleil, I wholeheartedly signed on. I think it's the next best thing to Michael doing his own tour. Michael was actually a huge fan of Cirque, and had seen all of their shows.

Jamie King, the show's director, brought Kevin Antunes on board as music designer. Jamie and Kevin had worked together on many productions, including shows for Rihanna and Madonna, and this time, Kevin had the enviable job of going through all of Michael's original Sony master tapes. He ultimately assembled them into what we now have as our show. [*See page 22 for Kevin's personal account of this process. —Ed.*]

On our cover, it says you're the guy musicians want to be. What advice do you have for them?

First, every music has its own groove. That's something I learned from Ray Charles. Quincy Jones played everything from bebop to Bar Mitzvahs. So always keep an open mind about musical styles. It not only enhances your musicality, it makes you more culturally connected to the world.

Second, oftentimes musicians will say, "Music is my life." But that's not the case. It's the life that you live that's *reflected* in your music. Nadia Boulanger, the famous French composer and teacher, once said to Quincy Jones when he was studying with her, "You're never more of a musician than you are a human being." ♫

Ruling Backstage

"Kevin Antunes, our music designer, spent months crafting the *Immortal* soundtrack," says Greg Rule, former *Keyboard* Editor in Chief and now audio programmer for the Cirque du Soleil *Immortal* tour. "It's a fresh take on Michael Jackson's work, including remixes, medleys, and mash-ups. After Kevin's soundtrack was complete, I came on for the transition to the live setup, along with the band. Together, Kevin and Greg Phillinganes determined which parts would be played live, and which would be handled by my playback rig. This was amazing—like living an episode of *VH1 Classic Albums* as we analyzed Michael's multitrack sessions."

"The primary function of my rig is to deliver M.J.'s lead vocal," Rule continues. "I also send time code to sync the music to video and lighting. I have three Apple Mac Pro towers with internal SSD drives and RME DSPe MADI audio cards, plus a pair of RME MADI Bridge switchers and a Rosendahl Nanosync HD master word clock. As with every other tour I've done, MOTU Digital Performer is the trusted software centerpiece. RME TotalMix runs in the background. DP is triggered in sync on all computers by a MIDI transport box custom-built by J.L. Cooper. The rig can send up to 64 channels of digital audio, and is patched into a MADI ring that connects to the DiGiCo SD7 mixers at the front-of-house and monitor positions. This tour is my first foray into MADI audio, and the rig has been fantastic."

"I've had the privilege of touring with some incredible musicians," Rule says, "but none have been quite like Greg Phillinganes. Onstage, he's the leader, the guru, the musical genius. His brain-to-finger translation is lightning fast. Someone will call out a random song title, TV theme, or jingle, and Greg just plays it immediately, fully voiced. The man is a living legend."

Watch Greg discuss the sounds, gear, and music of the *Immortal* tour in our exclusive video interview!

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STEVE AOKI

King of the Collaboration

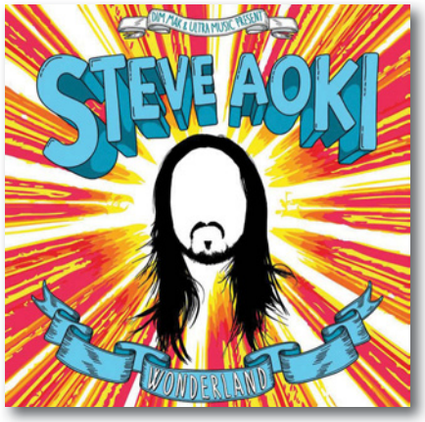
BY STEPHEN FORTNER

FROM HIS COLLEGE DAYS THROWING UNDERGROUND PARTIES THROUGH founding influential label Dim Mak in 1996, Steve Aoki always had one foot in electronica, the other in rock, and a third in hip-hop—producing artists as different from one another as Teddybears, Snoop Dogg, and Bloc Party. His musical breadth and collaborative spirit reaches a new apex on his album-length project *Wonderland*. With vocals by Rivers Cuomo of Weezer, the soaring opener "Earthquakey People" could well be this year's anthem of summer. "Control Freak" veers into retro-funk territory, and "Livin' My Love" layers eight-bit Mario-like sounds with hilariously irreverent rap from LMFAO and Nervo. Throughout, solid pop song structures make the album accessible enough to be called crossover, while get-stuck-in-your-head melodies played on positively huge synth sounds make sure you can't reduce it to that.

Let's talk about some of the tracks on *Wonderland*. Over what span of time did these collaborations occur?
It started in '07. One of the first tracks I wrote was "Dead Meat," which is now "Come With Me (Deadmeat)." I finished at the end of last year, but that was kind of the genesis of everything. There are so many ideas, so many different loops, and so many different riffs on my computer, and that was one I knew I was going to use. From all the different ideas you have on the computer, it's about organizing it all and finding the right singers and vocalists for each track. But I'd say the formulation of the album itself was in the past two years, when I was goal-oriented to get an album done.

Your stamp is on every tune, but there's so much diversity that even somebody who doesn't like electronic dance music will find things to like. How did you achieve that?
I think it sounds so eclectic because it wasn't all done in a three-month period. What defines a DJ is normally not albums, it's *songs*. Some of the biggest DJs in the world don't have albums out—Avicii, Laidback Luke, Afrojack. For a band, it's different—you need to release albums. I come from the rock world, so doing an album was really important to me. Plus, I've been doing Dim Mak for 15 years and we're an album-centric label. I'm between two worlds.

Do you prefer hardware or software synths?
I have a Juno-106, Korg Triton, Nord Lead 2, and a Korg MS2000, but for the most part everything is "in the box." It makes everything easier. Plus, I'm not as geeky as some producers who seem to know every circuit and line of code in their systems. I wanted to showcase my songwriting abilities, so that's where the main focus was—the diversity of the songs rather than just having "club bangers" the whole time. I stick with Logic, Ableton Live, and I'm mainly on [Native Instruments] Massive and Razor. I used Razor on "Earthquakey People (The Sequel)" and "Ladi Dadi (Part II)" for the more dubstep sounds. That's the beauty of being in the box—you can produce most of your sound anywhere and then you go back to your studio and mix it.



How did "Earthquakey People" come together?
With that track, I came up with the idea after I met Rivers Cuomo. I wanted to write more of a rockier electro record that I could imagine his vocals floating over. I was able to finish the majority of the track—at least the basic melodies for the verse and the chorus structures—enough to send it to Rivers. Then I just added all of the bells and whistles and lead synths later on. The main bass hook was the core idea—something repetitive that had that jagged energy. It's patterns like that that I always find the most difficult to write. So when I was able to finalize that pattern, I knew I could get halfway done with the track.

What was the inspiration for "Control Freak," which includes Blaqstarr's vocals and '80s-style funk bass?
That was a different process altogether. I wrote a standard beat and played the loop while Blaqstarr was in the vocal booth singing ideas. I recorded the whole thing and then cut out loops that sounded really good. He'd come back and be like, "I really like this section—let's sample that." Then I came up with the key signature and wrote around it. I wanted to do a funky record, so we dropped it down to 118bpm. For a good year it was just Blaqstarr on it—a different arrangement but the basic idea was there. Then I wanted to get some female vocalists on it to spice it up, so that's when I called in Kay. She really knows how to add that pop flavor to take it over. I'm really happy that I did that kind of song on this album to really diversify the sounds and the influences.

I also like the little arpeggios on "Control Freak" that descend during the break.
Arpeggiators are my favorite go-to when I'm stuck. If I feel like a track isn't moving properly or the hi-hats aren't helping the way they need to, then arpeggiators always come through. Every time you hear an arpeggiator, it's because I felt something else wasn't there.

What was your gateway into producing?
I've been in studios since I was 16, recording my own punk and hardcore bands. My first real dabble into the electronic world was the release that I put out on my label in 2002. I wrote the song in Reason. It's horrible, by the way. [*Laughs*.] I did all the vocals and all the production with no experience—just three to six months of figuring stuff out in Reason. I never got back into it until I started DJing. Then I tried some remixes, and I got into the studio in '04 and released a track in '05—a remix for Bloc Party, one of the bands on my label. That's the beauty of having your own label: You can release your own music even if no one else wants to! [*Laughs*.]

Now that you can work in a large studio with whatever gear you want, does analog or vintage gear come into the picture, say for recording vocals or instruments?
Not yet. I'm sure I will, because working with [Blink 182 drummer] Travis Barker has gotten me out of my very digital space. I'm constantly learning as a producer, so whenever I work with live musicians, my ears and eyes are wide open. Speaking of which, after this album's out, I hope to do another interview with you to discuss this new project that I can't really talk about yet, but it's something really exciting and it's going to incorporate live instruments. It's an exciting cast of characters. ♫

FROM THE PAGE TO THE STAGE

Arranging Michael Jackson's Music for Cirque du Soleil

BY KEVIN ANTUNES, AS TOLD TO JON REGEN

Kevin Antunes

THE CREATIVE DIRECTOR FOR CIRQUE DU SOLIEL'S *MICHAEL JACKSON:* *The Immortal* tour, Jamie King, has been a longtime friend, and he's the one who asked me to be the musical designer for the show. Jamie was actually a dancer with Michael Jackson a long time ago, and currently puts all the largest pop shows together, from Madonna to Britney Spears to Jennifer Lopez. Jamie introduced me to the executors of Michael's estate—John Branca and John McClain—and through them, Cirque du Soleil, and everyone at Sony Music, I was given complete and unfettered access to all of Michael's multitrack recordings, delivered via hard drive. My job was to arrange and update the music for the live show—no pressure! Here's a brief chronicle of what I did.

Obviously, we wanted to have Michael's biggest hits in there, but we followed Jamie's performance storyline to craft the musical design and song choices for the show. We were also given the authority to completely rework his songs. Once we had arranged the show and brought the live band in, it was also my job to show them the arrangements I'd put together, and to make sure every musician had the right *sounds* for them. Then Greg Phillinganes, the musical director, had to make sure everyone was playing the parts the right way.

The entire show was built in MOTU Digital Performer. I've been using it for years—it doesn't crash! The way it treats audio prevents it from bottlenecking like some other programs often do. It's extremely responsive, and no other software has the "chunks" feature. For example, right now as I'm piecing together Madonna's next tour, I can have several songs open in the Chunks view, all in the same project file. With other programs, you'd have to close one session and open another. With DP, multiple multitrack songs can exist all at once. That's how I'm able to jump between songs. I can drag-and-drop Chunks into other Chunks, and I can save different arrangements and interpretations of the same song. That happened numerous times working on *Immortal*.

I assembled the music for *Immortal* in studios all over North America. Some of the gear I used included a 17-inch MacBook Pro, Glyph hard drives, a MOTU 828 audio interface, and later, an Apogee Symphony. I also used a Roland Fantom-G7 and V-Synth GT, an Access Virus TI Polar, and a Minimoog Voyager. My soft synths included MOTU MachFive, EastWest Stormdrum, and Native Instruments Massive and B4. I also have a gigantic sound library—much of which I've collected over the years from Foley artists and DJs. Many of the show sounds came from there as well.

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I never worked with Michael Jackson personally, but I'm one of the biggest fans on the planet. I paid incredibly close attention to *all* the sounds that the band uses and how closely they matched the original records. For instance, I always make sure the drummers I work with have hybrid kits with multiple triggers, multiple snares, and electronic pads. I helped the *Immortal* [and longtime Jacksons] drummer, Jonathan "Sugarfoot" Moffett, get "Billie Jean" to sound like the record. You can play that beat on any kit, but it's the *sound* of those drums that makes that song recognizable in the first bar. So I sampled the kick and snare from the original recordings, and put them on an electronic kick pedal and pad for him. The goal since the start has been to sound like the records, but with the band free to develop its own groove and pocket. Many of the bass sounds came from the Roland V-Synth GT. I made sure that the bass player, Don Boyette, had a V-Synth, and I gave him all the patches I used to create the sounds.

Another example is "Smooth Criminal." There's a little solo in the middle of the song on the record. So I went to the master recordings, sampled it in MachFive, added a little bit of plate reverb, and

then loaded it into Greg Phillinganes' Korg Kronos so he could play it live. Another interesting technical thing about the *Immortal* sound design is that because some of the key musical passages in the show are medleys, I had to lay two multitrack mixes on top of each other when this happened. For example, there's a moment where Jamie King wanted to use Naomi Campbell's spoken word part from "Keep It in the Closet," but in the song "Dangerous." So I said, "Let's take it a step further!" I took the entire multitrack, time-compressed it, pitched it to the same tempo and key as "Dangerous," and then used the entire pre-chorus from "Keep It in the Closet" inside of "Dangerous." If you listen to the CD, you'll hear what I'm talking about. That happens a lot during the show.

It's easy to go so deep into technical details that we forget the most important thing: What made Michael Jackson so deep was his ability to break things down to their essentials and go minimal. That's what we did when we incorporated "I'll Be There" into the show. We needed a minute and a half of a song towards the end. So we made it a Greg Phillinganes moment, because he was close to Michael and he's a legend in his own right. Greg and I went to the studio where Celine Dion records, and in three takes on their beautiful Steinway piano, he duplicated the part that you hear on the record. Each take was great, but the third one had the magic. It's just Greg on piano, and Michael's 11-year-old voice singing "I'll Be There." ♫

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El-P (indie-rap hero, production genius, Definitive Jux co-founder, original Company Flow member) finally gives us a full-length follow-up to 2007's *I'll Sleep When You're Dead*. *Cancer for Cure* is a chunk of pure 24-karat hip-hop gold. With stellar production, quick-witted rap flows, piano (yup), dirty synths, and super-thick bass and drums, *C4C* defines the word "tight." "The Jig Is Up," "Stay Down," and "True Story" are standouts. *C4C* is replete with guests, including Killer Mike, Mr. Muthaf***in' eXquire, and—no joke—Paul Banks of Interpol. El-P drops a key piece of advice in "The Full Retard" that can be easily applied to overall vibe of *C4C*: "You should pump this s***/like they do in the future." (definitivejux.net) LORI KENNEDY

AHMAD JAMAL
Blue Moon
Pianist and composer Ahmad Jamal has been a towering presence on the jazz scene since "Poinciana" rocketed radio waves in the late 1950s. Now 81, he returns with the trio-plus-percussion outing *Blue Moon*, a cascading collection of standards and originals. On songs like "Autumn Rain" and the title track, Jamal surprises with an artful blend of silence, shifting meters, and persistent invention. Quite simply, he's *still* one of the most creative musicians on the planet. (ahmadjamal.com) JON REGEN

CRAIG TABORN
Avenging Angel
Pianist and composer Crag Taborn makes his ECM debut as a leader with the eloquent *Avenging Angel*. Marrying jazz, classical and avant-garde structures, the album at once reaffirms and re-examines the power of solo piano performance. In Taborn's hands, a Steinway assumes a myriad of personalities—at times, he even manages to pull near-electronic timbres out of the acoustic beast. Beyond categorization, *Avenging Angel* is a recorded triumph. (ecmrecords.com) JON REGEN

DVD
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Directed by John Korty
Every piano has a story, but the one in this absorbing documentary is particularly inspiring. Upon her death, piano teacher Leone McGowan willed her 1927 Steinway M to be awarded to the winner of a student competition at the music department at UC Berkeley. First, it was painstakingly rebuilt by Callahan Piano Service in Alamada, California. With heartfelt narration by actor John Lithgow, the movie is a celebration of the many lives that a single instrument can touch. (miracleinabox.com) JON REGEN

BIG SCIENCE
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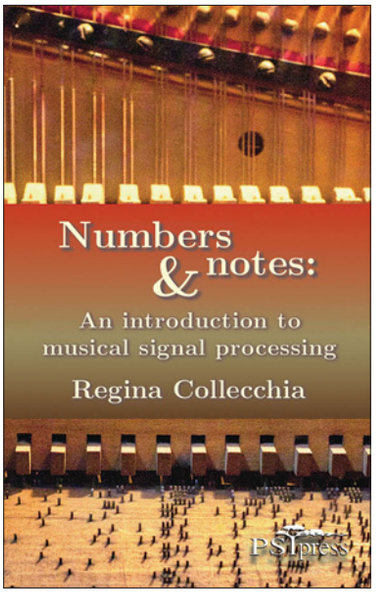
The formula for Big Science's sound goes something like this: The Killers plus Interpol plus Temper Trap equals blissful indie rock with sweet synths, echoing choruses, catchy guitar riffs, and energetic bass lines. *Difficulty* starts mellow with "All the Heat Has Escaped"—a drifting, soothing aural experience. Then it kicks into gear with "American Gravity," a danceable indie-rock delight. Catchy and fun. (bigscienceband.com) LORI KENNEDY



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REGINA COLLECCHIA
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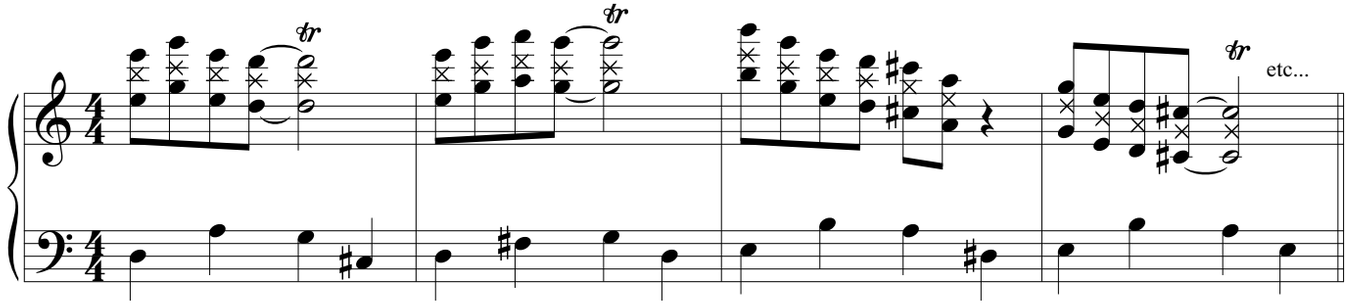
MUST-KNOW TECHNIQUES FOR Hammond Organ

BY BRIAN CHARETTE

THERE COMES A TIME WHEN EVERY HAMMOND ORGANIST NEEDS A LITTLE HELP FINDING improvisational inspiration. The following examples are meant to supply some potent techniques for creating compelling Jazz and Funk lines with ease. Remember that you can hear pieces of these licks in many classic organ solos, so use them with care!

1. Squabbling

Ex. 1 demonstrates the classic organ technique known as **squabbling**. Sometimes it's referred to as the Erroll Garner style, named for the famed jazz pianist who popularized its sound. Pull your bottom and your top four drawbars out for the historically authentic sound. The idea is that the thumb and pinky of your right hand play octaves while your other fingers "smush" notes in the middle. Some people do this by curling their middle three fingers and playing with their knuckles. I simply use a flat palm to play sloppily. Hear this technique in action on Jimmy Smith's solo on "Satin Doll" from his *Organ Grinder Swing* album.

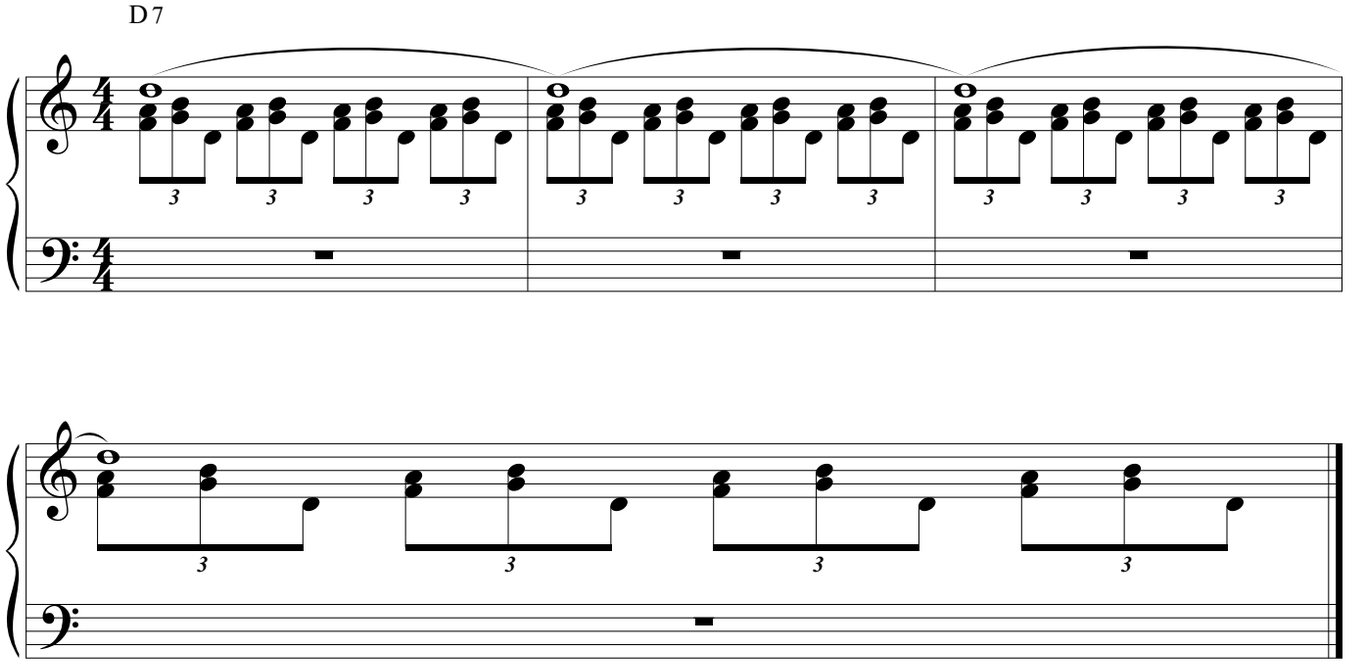


2. Jimmy and Jack

Ex. 2 rolls a few of the most popular jazz and blues licks into one neat package, and salutes Jimmy Smith and Jack McDuff. Bars 1 and 2 show one of the most popular organ phrases of all time. Practice it by changing the direction and shape of the line. Bars 3 and 4 include some common and pentatonic ideas, while bars 5 and 6 utilize the **shake** technique, which comes from blues piano but is extremely effective on organ.

3. Chester-field

Holding a note while playing other notes simultaneously is a very common and compelling device on organ. **Ex. 3** is reminiscent of Chester Thompson, the original keyboardist in Tower of Power. Here's how I play it: The pinky of my right hand holds the high *D*. The second finger of my left hand plays the low *D*. The first and second fingers of my right hand play the notes in the middle. Also, try holding the lowest note down instead.

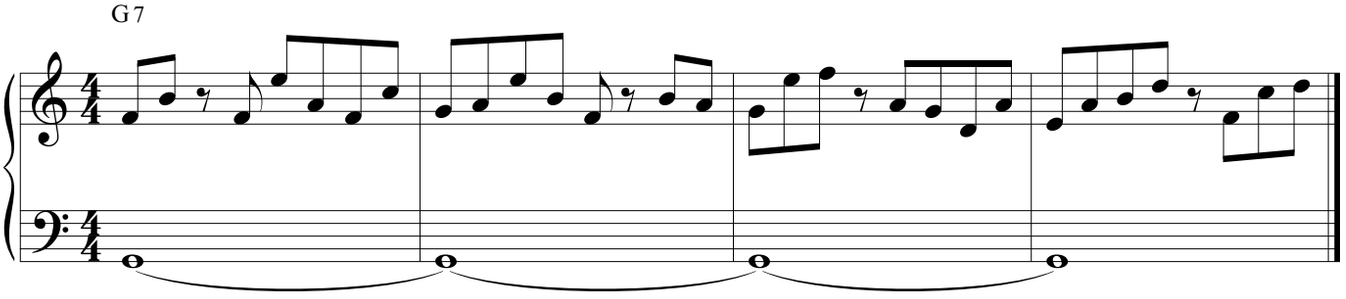


4. Larry Lines

Ex. 4 is a group of jazz licks inspired by organist Larry Young, whose sound was very different from, say, Jimmy Smith. By **arpeggiating two triads over a chord**, we can achieve great sounding melodic lines. In the first bar, I use *E*♭ and *F* triads over an *F7* chord. In the next bar, I use *F* minor and *E*♭ triads over *Fmin7*. In the third bar, I mix an *F* triad with an *A*♭ minor pentatonic scale to get interesting altered lines. The last bar of this example mixes triads in minor thirds from the root (*F, A*♭, *C*♭ [*B*], and *D*). This gives us a quick vehicle for creating interesting diminished sounds while also adding intriguing interval combinations.

5. Modal Magic

Ex. 5 illustrates using unusual intervals to create modern-sounding modal lines. Be aware of the "shape" of the mode you're playing in. Here, we're using *G* Mixolydian. Play random notes using unusual intervals and rhythms. The idea is to think of **shapes, not scales**.



NILS WINTHER

Practice Tip

"It's great to throw in a few of these classic organ lines in the middle of a very modern-sounding solo," says New York-based keyboardist and composer **Brian Charette**. "Practice them in all 12 keys and different time signatures." Charette has performed and recorded with Joni Mitchell, Lou Donaldson, Bucky Pizzarelli, Michael Bublé, and Rufus Wainwright, in addition to leading his own jazz groups. His latest album is *Music For Organ Sextette*, on SteepleChase Records. Find out more at kungfugue.com.

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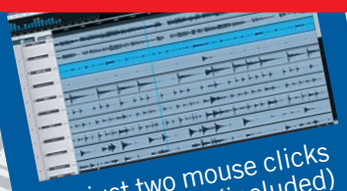

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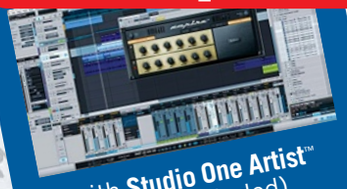

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Keeping Practice Interesting

BY HELEN SUNG

TIME IS PRECIOUS, SO IT'S IMPORTANT TO LEARN TO PRACTICE EFFECTIVELY. ALTHOUGH I NOW PLAY MAINLY jazz, how I practiced as a classical pianist has always stayed with me. In classical music, much of practicing is repetition. So to avoid boredom and stay focused, I learned to vary the repetition in my jazz studies. One of the main things I try to impart to my own students at Berklee College of Music is how to break things down into single elements that they can focus on over a sustained period of time. As a student, a chord progression I always wanted to solo better over was the *iimin7♭5-V7*, which I first encountered in the Dizzy Gillespie tune "Woody 'n You." To make practicing more interesting, I'd write songs containing elements I wanted to work on, as it's more fun to practice in a musical context. My song "The Waiting Game" starts with this progression: *F♯min7♭5-B7-Emin7♭5-A7*. Here are five ways to keep practice interesting over the *iimin7♭5-V7* progression.

1. Scales

The *iimin7♭5-V7* progression is a mainstay of **bebop**, so a good option for improvisation over it is the bebop scale. Barry Harris helped me understand a great deal about bebop, including helping me overcome "root tyranny" when playing over *iimin7♭5* chords. I noticed my solo lines often started on the root of that chord. Barry told me, "Since the notes of an *F♯min7♭5* are also the third, fifth, seventh, and ninth of a *D9* chord, one can play the **dominant** bebop scale of that chord over *F♯min7♭5*."

KATHY VILLACORTA

Counter Point

"I recommend taking a counterpoint class if possible," says acclaimed jazz pianist **Helen Sung**. "Music is about notes 'finding their way home,' and counterpoint teaches this in a very intriguing way." A graduate of the Thelonious Monk Institute, Sung won the Kennedy Center's Mary Lou Williams Jazz Piano Competition and has worked with Clark Terry, Ron Carter, Wayne Shorter, and Regina Carter. In addition to her own band, Sung can be seen in the Mingus Big Band, the T.S. Monk Band, and Terri Lyne Carrington's Grammy award-winning *Mosaic* project. Learn more at helensung.com.

2. Arpeggios

Bassist Ron Carter, whose ability to play beautiful bass lines is legendary, advocates knowing a chord in all its inversions and permutations. **Ex. 2** gets us practicing our chord progression using *arpeggios*. This can be varied by starting on different notes of the chord, as well as different parts of the measure. It's helpful to practice these ideas "in time," so get out your metronome!

3. Guide Tones

Guide tone lines give us a framework for solo lines. The more "active" notes of a key are usually the guide tone notes. For example, the **fourth** and **seventh scale degrees** are both harmonically active and want to resolve to the third and root, respectively. *E* minor is the key center for ***F♯min7♭5-B7***, and *D* minor is the key center for *Emin7♭5-A7*. So one can make the guide tone lines in **Ex. 3**.

4. Practicing "in Rhythm"

Sir Roland Hanna always encouraged me to focus on context when practicing. "Bad" notes played with strong rhythm still sound better than "good" notes played with weak rhythm. The lines for **Ex. 4** are based on the rhythmic shape of some of Charlie Parker's classic sax solos.

5. Writing Out Solos

Jazz pianist Danilo Perez taught me to write out solo lines to practice various concepts. The idea was to try and create my "ideal" solo line over a given harmonic progression or situation. Improvisation is spontaneous composition, and so the idea of "composing" a solo can be extremely helpful in refining what you like to hear and play. **Ex. 5** contains two four-bar examples of "ideal" solo lines that use the ideas we've already discussed.

See Helen perform at the Kalisz International Jazz Piano Festival and hear her play these audio examples.
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5 WAYS TO PLAY LIKE Greg Phillinganes

BY MATT BECK

ONE LOOK AT GREG PHILLINGANES' RÉSUMÉ AND YOU'LL QUICKLY UNDERSTAND why he has risen to the top of modern music. Greg has toured and/or recorded with Michael Jackson, Stevie Wonder, Eric Clapton, Herbie Hancock, Paul McCartney, and Donald Fagen, to name a few. Narrowing down his chameleon-like keyboard command to a mere "five ways" would be impossible, but these examples are a great way to start incorporating his ethic into your own playing.

Good keyboard solos have the sense of phrasing and breath that's physically inherent to singing or playing a wind instrument. A great example of how Phillinganes applies this is in "One Hundred Ways" from Quincy Jones' album *The Dude*. Greg's solo is *singable*, tasty, and interesting to listen to. He also uses a brassy synth sound with an almost vocal quality that compliments singer James Ingram's voice perfectly. **Ex. 1** is in the style of that classic solo.

Next, Phillinganes can deliver a grooving, down-home piano part at the drop of a hat. Check out his solo on Donald Fagen's "Ruby Baby" from *The Nightfly* for the an example of how he effortlessly combines "straight-ahead" Jazz, Blues, and beyond. **Ex. 2** is in a similar style.

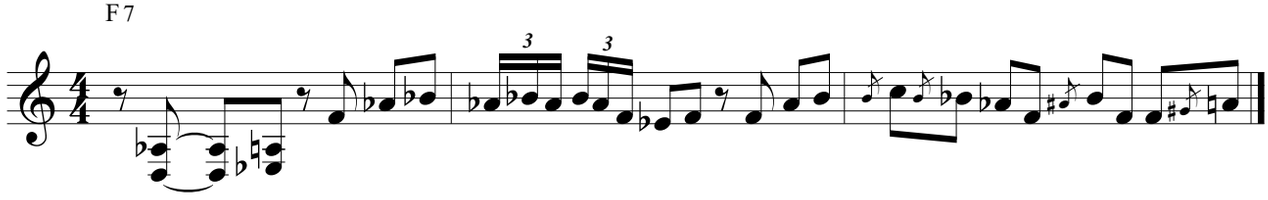
Ex. 3 is reminiscent of Greg's synth bass line on Donald Fagen's "Walk Between Raindrops," again from *The Nightfly*. Notice how he breaks the walking bass line up, much like a real bass player would.

Phillinganes is revered not only for his dexterity, but also for his **expressive** approach to everything he plays. Electronic textures seem to spring to life under his command. A perfect example of his dynamic musicianship is the synth solo from Michael Jackson's "Bad." **Ex. 4** contains elements of that style.

Finally, Phillinganes is never one to play it safe, and often pushes a song's harmonic limits in both comping and solo passages—but never goes too far. He did that often during his tenure with the group Toto. **Ex. 5** demonstrates his penchant for mellifluous motivic and harmonic development.

Ex. 1. Singable Synth Solo

Ex. 2. Piano Solo



Be Multi-Instrumental

"Part of why Greg Phillinganes is so sought-after is that he can cover any type of part on keyboards," says **Matt Beck**, who plays keyboards and guitar with Rob Thomas and Rod Stewart. "He can easily bounce between keyboard, horn, string, and bass parts, or cover them simultaneously." Beck also plays for the Broadway musical *Spider-Man*, and recently released his solo outing *Anything Which Gives You Pleasure*. Follow him on Twitter at @mattymay.

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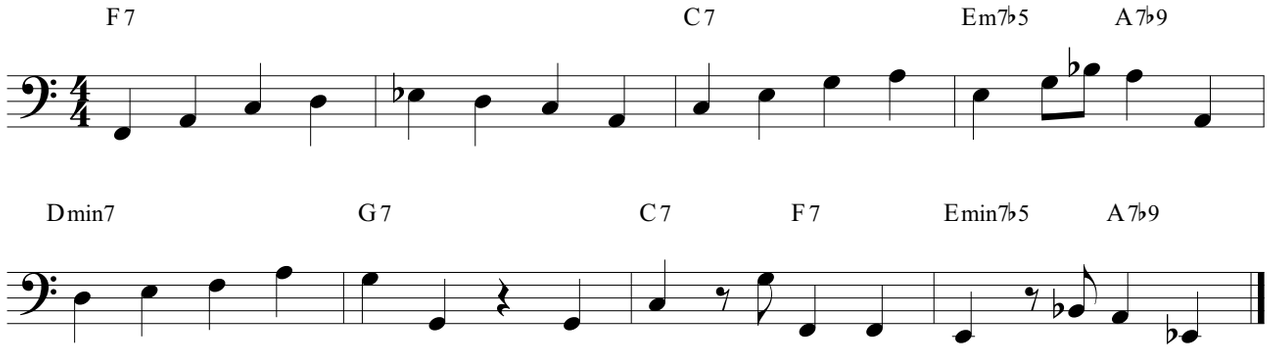
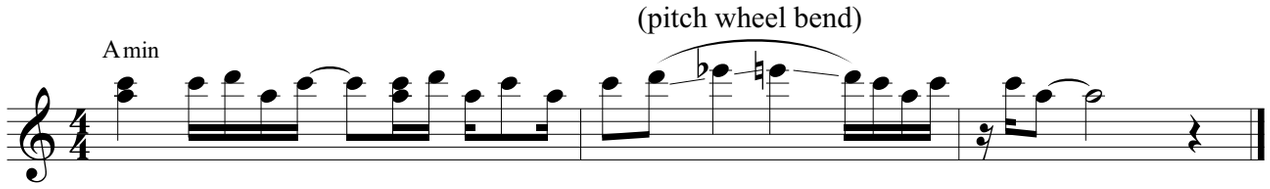
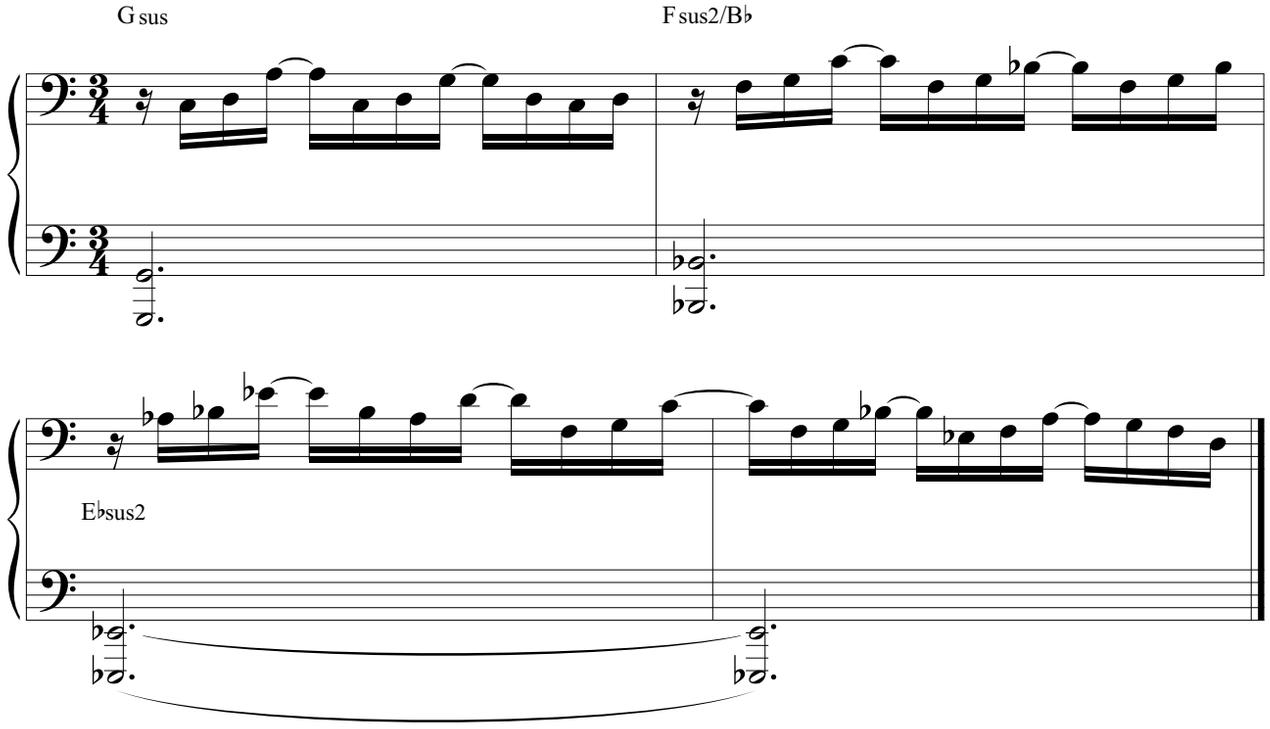
Ex. 3. Walking Bass Line



Ex. 4. Expressive Synth Solo



Ex. 5. Harmonic Exploration



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Desktop Mastering Essentials

BY CRAIG ANDERTON

Fig. 1. A classical music file in Steinberg's WaveLab 7. Processors include EQ and stereo width expansion; note the spectrometer window toward the top.

LIKE MUSIC RECORDING AND VIDEO PRODUCTION, MASTERING—THE FINAL stage between mixing and distribution—has migrated to the desktop. As good as the tools have gotten, one reason why people still go to professional mastering engineers is to exploit their ears and experience, as mastering is a specialized art. It's also good to employ fresh ears that haven't been immersed in the project all along. Nonetheless, if you define mastering as "making the mix sound better prior to distribution," why not give it a try? If you don't like the results, you can always take your mix to a pro.

The Tools

Most in-the-box mastering employs dedicated audio editing software like Sony Sound Forge, Steinberg WaveLab (Figure 1), Adobe Audition, BIAS Peak, and the like. These often include their own mastering-quality plug-ins, but you can also use third-party plug-ins from companies like Waves, Universal Audio, PSP, Voxengo, and many others. iZotope Ozone 5 is a suite of plug-ins and diagnostic tools (Figure 2) that's a one-stop shop for mastering processors; IK's T-Racks is a software mastering suite that can also add a vintage flair. Many mastering engineers swear by Har-Bal, a stand-alone program with sophisticated EQ, limiting, and stereo separation options.

Increasingly, it's also possible to master right in your DAW. Magix Samplitude has always emphasized this, and PreSonus Studio One Pro has separate tracking/mixing and mastering pages (Figure 3), with excellent album assembly options—if you edit a mix, the version in the mastering page will update automatically.

Some DAWs also include mastering plug-ins (like MOTU's MasterWorks and Cakewalk's Linear Phase EQ and multiband compressor), and provide at least primitive CD-burning capabilities. Nor are you limited to plug-ins—provided you have the spare outs and ins on your audio interface, almost all DAWs and audio editors let you send a signal to external hardware processors, which can appear in the program like plug-ins.

Tip Jar

The process always starts by listening to the mix multiple times—get to know it really well before you start tweaking. But enough generalities. Here are some specific tips.

Treat your room and use decent speakers. Accurate mastering requires accurate *monitoring* because you want a transportable mix that sounds good on all kinds of listening systems. For example, if you cut low end because your speakers' bass is exaggerated by their being in the corners of an untreated room, your mix will sound fine in your studio, but won't have enough bass when played back on iPod ear buds. For more on dealing with your room, see our feature on page 52.

The big three: EQ, dynamics, and everything else. I consider mastering about 85 percent EQ, ten percent dynamics, and five percent everything else (*e.g.*, stereo enhancers and harmonic exciters). I've received acoustic projects recorded in a room with resonances, and used EQ to create narrow, shallow notches to take them out. EQ

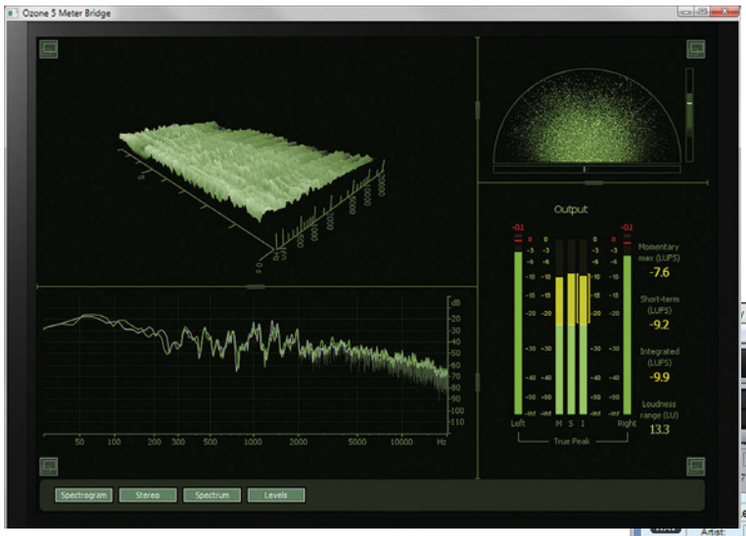

Fig. 2. iZotope Ozone 5 Advanced's Meter Bridge includes several mastering-oriented diagnostic tools.

Fig. 3. PreSonus Studio One Pro has a page dedicated to mastering, which can include effects for individual tracks as well as master effects for all tracks.

can emphasize or reduce the impact of individual instruments, like tame an overly-loud hi-hat without affecting other sounds, or boost a kick for a big dance mix. It can help compensate for mistakes caused by mixing in a room with bad acoustics, and add definition and sparkle. You can sometimes even minimize "digital brittleness" by adding a steep, high-cut filter starting around 15 to 18kHz.

Don't squash. It's ironic that even though digital playback media doesn't have significant dynamic range limits, people act as if it does. Excessive compression or limiting may sound dramatic at first, but eventually gets fatiguing. The trick is finding the sweet spot between a level that's competitive with other cuts in a playlist, yet retains dynamics. I like maximizer plug-ins with a continuously variable threshold, as I can close my eyes, move the fader back and forth, then park it in that sweet spot. Another trick is "micro-mastering." If most of a mix's peaks reach –5dB but a couple dozen go to –1dB, I'll normalize just the half-cycle of those couple dozen peaks to –5dB, then normalize everything back up to –1dB. This gives a 4dB increase in level with no perceptible dynamics squash.

Don't master while you mix. It's technically possible to insert mastering-type plug-ins into the final master bus when mixing for "one-stop mastering," but I advise creating a mix without *any* bus processors, then mastering it as a separate entity. You'll approach the mix with fresh ears, and your original mix will always be available if you need to re-master it.

Downscale your changes. Half a dB of EQ added to a drum track isn't going to make much difference, but on a final mix, you're adding it to every instrument. If you're new to mastering, whenever you make a change, immediately cut it in half. For example, if a 3dB boost at 4kHz sounds good, change it to 1.5dB and let your ears acclimate to the sound before you decide you need more.

Remember Newton. For every action, there's an equal and opposite reaction. If you boost the treble, for example, you're also de-emphasizing the bass.

Beware of inter-sample distortion. When the digital-to-analog convertor in your audio interface reconstructs a signal, it may exceed 0dB despite what the meters show. That's because most meters measure the level of individual samples, but an analog waveform drawn *from* those samples may create an arc that extends above zero. SSL offers the free X-ISM metering plug-in that can alert you to inter-sample distortion. ♫

Craig Anderton has mastered hundreds of tracks in the past few years, and is Executive Editor of Electronic Musician *magazine.*

Download a cool free metering plug-in from Solid State Logic.

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Anyone else see two stun guns and a police radio? All can make arresting live recordings of your next gig.

The Ultimate Board Tape

CAPTURE YOUR GIG WITH A HANDHELD 4-TRACK

BY STEPHEN FORTNER

SO YOUR BAND IS DOING SOME GIGS, AND YOU RECKON THE BEST WAY TO get more of them is to cut a good demo. Booking studio time isn't in the budget, your home studios are all small, and you want to capture the magic that happens when you play for a crowd. Plus, if you're a working cover band, chances are a live (read: paying) gig is the only way to get all you ringers in the same room at the same time.

Existing Approaches

So, just record a gig, right? Anyone who has tried it is probably familiar with these approaches, each with its own pitfalls.

Standalone stereo. Today's handheld stereo field recorders (or for that matter, iPhone mic attachments) have great sound quality and effective auto-level control so volume peaks won't blow out your recording. Still, you get what you get, crowd noise is a factor, and the mix will sound different from what you heard live. They're great for solo piano, a singer/songwriter performance, or a jazz combo, but less ideal for a large rock or dance band.

Stereo board tape. You take a stereo feed from the front-of-house mixer into your recorder. In smaller bars and clubs, though, often not everything goes through the mixer—the guitar amp or snare might be plenty loud on its own, for example—so except for bleed through the vocal mics, those won't get recorded. Mike them up anyway and just not turn them up in the house? Nope.

On most compact mixers you'll find in clubs, you'll get your stereo feed from the RCA-jack "tape out" or a duplicate of the main outs. Those tend to be *post-fader*—what's low in the house is low on the recording. Pre-fader aux sends will be in use for monitor mixes, so don't ask.

Splitsville. The traditional pro way to do live recordings is to split every signal upstream of the house mixer. One split goes to the house and the other goes to an independent recording system. Let's assume that the level of cabling, setup, and potential distraction from the main job of rocking the gig (not to mention the expense of good splitters) makes this a non-starter.

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reviews of both) can send a pre-fader multitrack stream over FireWire or USB (respectively) so you can capture now and mix later. If the club has one of these, bring your laptop-based DAW and be nice to the sound engineer. Otherwise, keep reading.

Field Is the New Four-Track

Handheld field recorders have multiplied like Zerg from *Starcraft* over the past few years, and three—the TASCAM DR-40, Zoom H4n, and Roland R-26—got our attention for recording not just in stereo, but on four channels at once (or six for the Roland). All three let you get a solid live recording without superimposing a full-on multitrack project onto your gig night. They can record one stereo track from their built-in mics and another from the XLR combo inputs each one has. So, the idea is to "split the difference," capturing room sound from the integrated mics while direct-recording the best stereo feed you can get from the house mixer.

The result is dual stereo files: one for the built-in mics and one for the external inputs, which you can dump into your DAW and mix after the fact. While this won't let you address every problem that full multitracking would (like a keyboard solo that was just too darned low), you can get a lot of mileage out of blending the line mix with the room mix and riding their levels relative to each other. Since you're working with just a couple of stereo files, they're also a great sandbox for trying Craig Anderton's desktop mastering tips from page 40 of this issue. And who doesn't like being able to fade up the applause and chants of "One. More. Song!" sure to happen at the end of your set?

Cool Features

These days, almost all handheld recorders do the fundamentals well: auto-limiting, low-cut filtering for wind noise and rumble, letting you set markers while recording (say, for the beginning of a song or solo), and so on. Each one in our trio also has its own useful tricks up its sleeve.

An alternative to four-channel mode on the TASCAM DR-40 is dual recording, which makes two files, one at six to 12dB below the other. If you get distortion, you have the quieter file as insurance and can boost and replace the offending bit in your DAW. In four-channel mode, the DR-40 lets you set a delay for what gets recorded through the inputs relative to the built-in mics. This corrects for how far the DR-40 is placed from the stage, and can reduce phase issues and the need to nudge the "room" and "line" tracks around in your DAW. The TASCAM is also the price leader of the bunch.

Both the Zoom and the TASCAM feature non-destructive overdubbing, onboard mixdown, effects, and a mixer screen that evokes a little desktop multitrack (engage MTR mode on the Zoom or press the Mixer button on the TASCAM). The Zoom goes a little further in that its effects include modulations (chorus, phaser, etc.) and amp simulators compared to the TASCAM's reverb-only roster. The Zoom also lets you plug a guitar directly in, and includes Cubase LE software.

The Roland R-26 is a different beast, recording on up to *six* channels at once through nearly any combination of sources you specify: built-in X/Y cardioid mics, built-in omnis, XLR combo jacks, and/or an external plug-in powered stereo mic. The touchscreen, dedicated "Sens" button for setting gain, and large input trim dials make using it luxurious. Those dials aren't hardwired to left and right—depending on your recording mode and selected input sources, one might tweak the onboard mics while the other adjusts the line inputs. The R-26 eschews onboard mixdown and effects, assuming you're going to do all this post-production—for which it bundles a copy of Cakewalk Sonar LE.

A final word: This article is certainly not a full roundup of handheld four-tracks—just a guide to one cool thing you can do with them. In the course of using them, though, we've become intrigued enough that you can expect full reviews soon at keyboardmag.com. ♫

	TASCAM DR-40	Zoom H4n	Roland R-26
MAX. RECORD CHANNELS AT ONCE	4.	4.	6.
FORMATS	MP3, WAV, Broadcast WAV.	MP3, WAV.	MP3, WAV, Broadcast WAV.
MAX. AUDIO RESOLUTION	24-bit/96kHz.	24-bit/96kHz (48kHz in 4-channel mode).	24-bit/96kHz.
BUILT-IN MICS	Cardioid, switchable coincident X/Y or A/B position.	Cardioid, coincident X/Y with switchable 90° or 120° spread.	2 omni plus 2 cardioid conincident X/Y.
EXTERNAL AUDIO INPUTS	XLR-1/4" TRS combo w/ 48V phantom, mic/line.	XLR-1/4" TRS combo w/ 48V phantom, mic/line/guitar.	XLR-1/4" TRS combo w/ 48V phantom, mic/line.
PLUG-IN POWER 1/8" STEREO MIC JACK?	None.	Replaces built-in mics when used.	Replaces omni mics when selected as input source.
BATTERIES/AC	3 AA (included) or optional AC supply.	2 AA or included AC supply, USB (storage mode only).	4 AA or included AC supply.
WEB	**tascam.com**	**samsontech.com**	**rolandus.com**
PRICE (LIST | STREET)	$299.99 | $199.99	$549.99 | $299.99	$599.99 | $499.99

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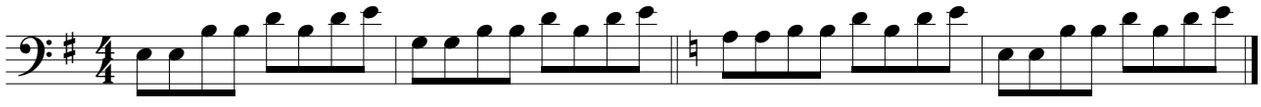
Acoustic Augmentation

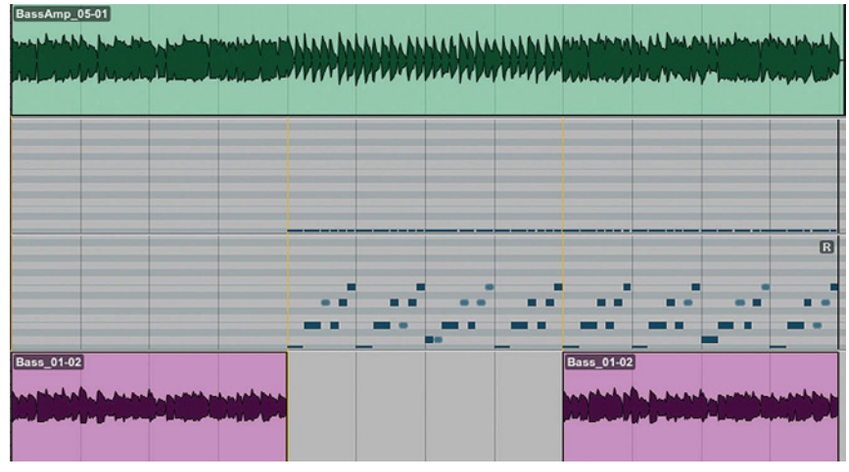
BY DAVID BARON

SYNTHESIZERS ARE AWESOME ON THEIR OWN. THEY GROWL AND HISS AND make all kinds of captivating sounds. They can also show up in unexpected places, and I don't mean cocktail parties or dentist's offices. They can appear in mixes under electric basses, thicken strings, or make an ordinary snare drum sound unique and unforgettable. Synthesizers can add sonic surprise to otherwise mundane tracks. Here are a few ways to use them in your own aural explorations.



1. Bass Guitar + Synth = Bassaggeddon

I like fat analog synths to play sub-frequencies under electric bass guitar. It makes the real bass sound monstrous. The first step is to double the electric bass accurately. My typical technique is to play along with the recorded bass part (on the bottom in the screen shot) into a MIDI track, staying in loop mode until I nail it. Once I have a decent "MIDI mirror" of the bass audio track (second track from bottom), I edit to make sure all the transients line up, to avoid flams between the two parts. Sneak the synth under the real bass, and if you like, run it through an amp simulator to make it blend, re-recording everything as audio (top track).



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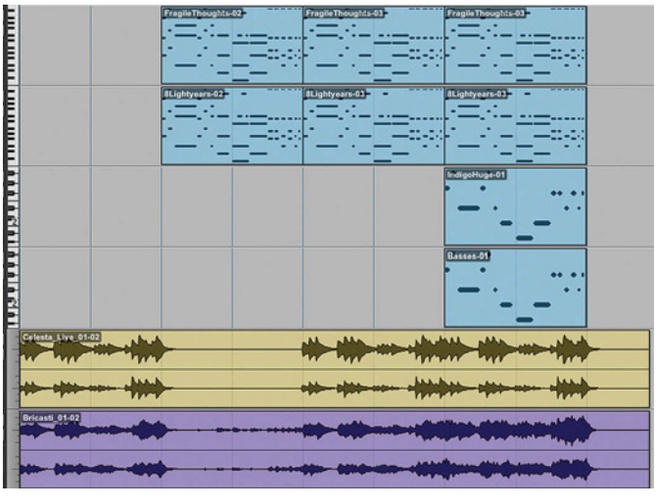
2. Space Bachelor Pad

Here, I take a Celesta (bottom track) and double the chords using two synths playing mono patches that are similar but not exact (top two tracks). Adjust the volume envelope of your synth patches to match the acoustic track's decay and release times. I route modulation to the filter or amplifier section of my synth to create a shimmery feel. The result retains some acoustic properties while shifting the instrument into a more panoramic soundscape.



David Baron composes jingles and TV themes, and has appeared on records by Lenny Kravitz and Michael Jackson. He makes his own records using vintage analog gear and plays keyboards in the band Media. Visit him at edisonmusiccorp.com.

SOUNDCLOUD

Get audio examples of these techniques, plus a bonus tip on fattening up snare drums.

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Be the Sampler

BY FRANCIS PRÈVE

SAMPLING BITS FROM OTHER TRACKS IS A GREAT WAY TO GENERATE INSPIRATION. It's also a way to set yourself up for licensing hassles and at worst, a legal nightmare that could seriously slow down your career. However, as hip-hop artists have discovered, there's a secret that can spare you these headaches and charge up your creative batteries: Figure out how the original artist did it, then play or reconstruct it yourself—with enough changes to avoid copyright woes.

Recently, I found myself wanting to sample the amazing choirs from New Order's "Blue Monday." Obviously, I couldn't afford to go the licensing route—and the sample in question was a single *D* minor chord, an entity that can't be copyrighted in and of itself. (Nor can the sound of an instrument—can you imagine guitarists struggling over playing an *E* chord on a Les Paul through a Fender Twin with all the knobs set just so?) So the challenge was to recreate that vintage sound myself. Time to start Googling!

Step 1: Research the Tune

First off, a little research about "Blue Monday" showed that New Order actually sampled the *D* minor chord—and sound—from a track on Kraftwerk's *Radio-Activity* album called "Uranium," released in 1975. Whether they licensed it themselves was immaterial. I intended to play it very safe here.

Step 2: Research the Sound

I then researched the making of *Radio-Activity*. After bouncing through a few links, I discovered that the choir I wanted was created on a Vako Orchestron: an astonishing instrument that used spinning disks and light (not lasers, but simple flashlight bulbs!) to play back recorded audio. Since there are only 100 or so of these rare creatures on the planet, I then had to figure out if any company had created a sample library of Orchestron sounds.

Step 3: Find the Right Plug-in

A bit more research and *voilà*, **IK Multimedia SampleTron** fit the bill. With vintage sample-based instruments like the Mellotron, Chamberlin, and Orchestron represented, SampleTron was an ideal addition to my largely vintage studio—and the price is a very reasonable $229 (or less) for a massive virtual collection of ultra-rare gear.

Step 4: Match the Sounds, Play the Notes

From there, I temporarily added the "Blue Monday" choir to my DAW (solely for reference), then inserted an instance of SampleTron. Then I found an almost identical sounding Orchestron choir and figured out the voicing of the chord. Since SampleTron clearly contains a different recording of the Orchestron than the original sample, there are very subtle sonic differences that ensure no one can say I just sampled Kraftwerk or New Order.

So next time you want to sample a classic riff, take some time to figure out how it was done, change enough notes to keep your butt out of court, and recreate the original. Even if you make music mainly with a mouse, the ability to *be* the sampler and thus avoid licensing issues makes a strong case for developing some basic keyboard chops.

SOUNDCLOUD

Compare the original sample to Francis' recreation.

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CLEAN UP YOUR ROOM!

Part 2: Acoustic Treatments

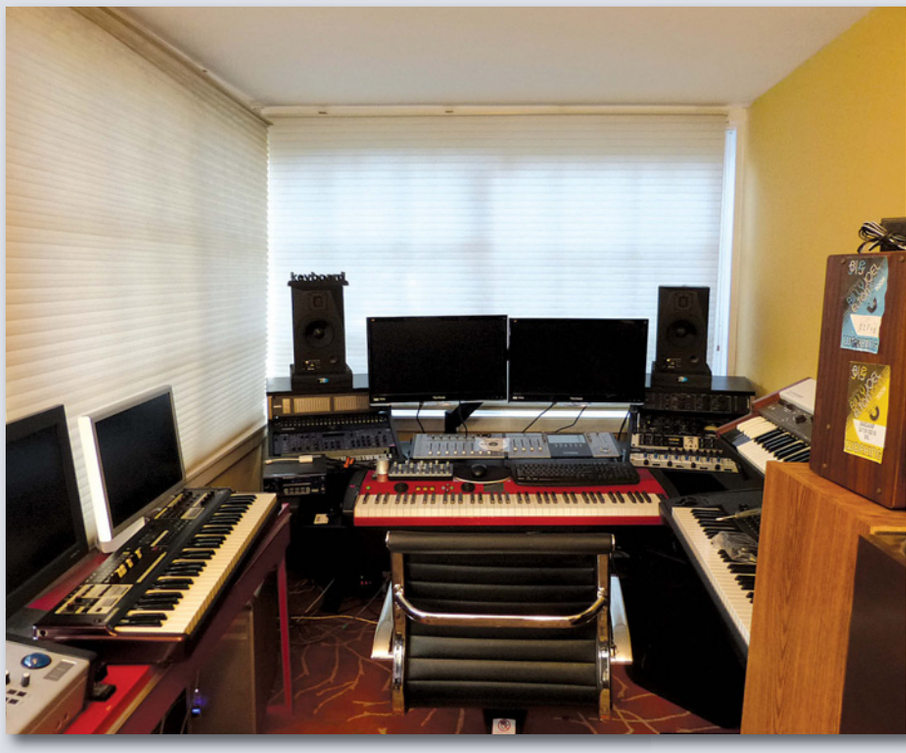
BY MARTY CUTLER

LAST MONTH, WE REVIEWED DIGITAL TOOLS THAT DETECT ACOUSTIC PROBLEMS in your studio and compensate for them to help you do better mixes. They generate test tones, listen with a measurement mic, analyze the results, and make EQ-based corrections at the output stage of your recording system. As effective as this approach is, it can't correct what your room may be doing to your sound at the *input* stage—mainly to anything you record with a mic. So while that synth bass you bounced to disk sounds fat with plenty of attack, the electric bass you re-amped may sound thin and papery, and vocals may sound smeared and ringy.

Testing Methods

In small, parallel-walled rooms, bass frequencies can accumulate in corners and become boomy, or cancel each other out and become quieter or even inaudible. Higher frequencies bounce off the walls and can cause flutter echoes, ruining the imaging of sounds in that range. With that in mind, we tested acoustic treatments from three companies, made listening observations, and analyzed the results through IK Multimedia ARC—it takes high-frequency issues into account as well as more common low-end problems, and while not a reference spectrum analyzer professional studio designers would use, it *is* a tool real-world musicians are more likely to have. I sent each company a mockup of my room, with dimensions, doors, windows, and anything else that might alter the path of sound waves issuing from my monitors. The companies then sent me room treatments they deemed appropriate.

Fair warning: You'll need to be handy with a drill and anchors to get some (but not all) of these products up. Because mounting panels can be a trial-and-error process, it would be great if more manufacturers provided alternate mounting materials suited to temporary placement. I'm not keen on poking multiple holes in the old drywall of my old house, especially in something so ephemeral as a spare bedroom studio. Given my skill level, I decided to use industrial-grade Velcro wherever possible.



Glass Houses

Hi, editor Stephen Fortner here. My studio sometimes makes me feel like the proverbial shoemaker who goes barefoot—not the cool gear I get to try out, but the space itself. It's a long, skinny rectangle of a converted sun porch with wall-filling windows on three sides. There's a too-big Genelec sub under the Argosy workdesk, and as you can see, the only current treatments are the Primacoustic Recoil Stabilizers (seriously awesome speaker isolators) under my Adam S2A monitors. I sent pictures and dimensions to Primacoustic, and rather than laughingly suggesting I move, they recommended a London Kit. The biggest challenge would be to mount panels in a way that didn't damage the vintage window frames or interfere (too much) with the blinds. Watch videos and read all about it at keyboardmag.com/july2012.

Fig. 1. A desktop view of a pair of Primacoustic Control Columns flanking either side of a single Broadband panel.

Primacoustic

primacoustic.com

If your room suffers from a particular acoustic foible, Primacoustic has a solution for it, ranging from isolation tools to bass traps, gobos, diffusers, and much more. You can pick and choose treatments on a piece-by-piece basis; the website is immensely helpful at explaining room issues. You can also select kits designed for different sized rooms from project studios to nightclubs to home theater.

My room falls under the category of project studio, and with that in mind, Primacoustic sent me their London Kit 12, which comprised a pair of 24" x 48" x 2" Broadband Panels, eight 12" x 48" x 2" Control Columns, and a dozen 12" x 12" x 1" Scatter Blocks. The panels were primarily dense fiberglass with an aesthetically pleasing, grey, textured fabric.

Mounting hardware was a box of drywall impalers, screws, anchors, and even the proper size drill bit. I was expecting standard bass traps, but according to Primacoustic, the larger Broadband and Control pieces cover a very wide range of frequencies. Bear in mind that kits are generally starting points, and Primacoustic offers a variety of hardware *a la carte* for fine-tuning.

My attic door, situated at the left front corner of my space, precluded putting a bass trap there. Instead, I initially mounted the larger Broadband panels at the front of my room, directly parallel to my rear wall: the left unit temporarily over my window, and the right one on the wall directly in front of me, with a couple of Control Columns at the right and left of the right-hand Broadband panel. (See Figure 1). That left mostly smaller spaces, where I could mount a few more columns and fill in the gaps with the smaller Scatter Blocks.

Now to listen. As much as I loved my untreated room sound, I was immediately and unequivocally aware of a fabulous improvement in clarity. The imaging, which my Tannoy Reveal monitors always provided in spades, was even more spacious and accurate. I work by myself most of the time, but I collaborate frequently enough that I appreciated the broader sweet spot, although the bass was more emphatic, bordering on boomy, in the left rear corner of the room. That made sense, as it was the corner with the least available treatment. Finally, I worked a mixdown using the same sequence material I used for last month's story. Due to the balance and clarity the treatment provided, it was significantly easier and quicker to get results that were pretty darned consistent across a variety of playback mediums, including my home system, an iPod with earbuds, and my car stereo.

The ears say one thing, and inevitably, measurement software says another, so I loaded up ARC and swept the room. Interestingly, the

IK Multimedia ARC measured room response before and after installing acoustic treatments. Get screenshots of the results and room diagrams at keyboardmag.com/july2012.

right channel profiles were remarkably similar with a lot of mild mid-to-high-frequency bumps, albeit with a bit of an increase in amplitude in the right channel in the treated room. Below 200Hz, the readouts were similar before and after, again, with slightly increased amplitude peaks at roughly the same frequencies, including a pronounced dip in the left channel at about 100Hz in the treated room. I'm guessing I would've seen more improvement here had I put proper bass traps in both forward corners.

I tried mixing through ARC in conjunction with the room treatment. Oddly enough, I preferred my new Primacoustic environment without it, as the audio took on a bit of a brittle high end with it. In fairness, ARC offers alternate frequency roll-off curves, which could likely smooth this out.

Fig. 2. RealTraps' modular design makes it a snap to reconfigure your studio. A MiniTrap in my front window absorbs nasty wall-to-glass reflections. A MicroTrap sits in each corner to break up bass frequencies.

RealTraps

realtraps.com

If your workspace is as compact as mine, the fact that your space changes dynamically is a given. Add one 19" rack, and furniture may move. RealTraps recognize that and offers modular systems on stands that you can move as your space changes. Primacoustic does this as well, but mainly for their portable gobos such as the Freeport series.

I received four MiniTraps, designed to catch bass in corners; three MicroTraps, whose one-inch thickness is focused on mid-to-high frequencies; a couple of stands, and the requisite mounting hardware.

Mounting is deceptively simple. Once I fully grasped the setup procedures, it took me only minutes to attach and use the MicroTraps, which I'd mounted on stands. The assembly instructions would be better with step-by-step diagrams for the mechanically challenged such as myself.

Because these units are free-standing, I had no issues with the doors in the left-hand corners; I could put traps there while working, then slide them away for door access (see Figure 2). A MicroTrap on a stand to my left stood in front of the closet door and another in the left front window tamed reflections from the glass. The third Micro perched in a groove in my right-hand window for similar reasons, with the added benefit of dampening outside traffic noise.

The MiniTraps in the corners did a great job of cleaning up the bottom end, and making it consistent over a fairly wide area. Imaging was excellent, but for some reason, upper frequencies and transients seemed present enough, but without the "sparkle" of the Primacoustic kit. Likewise, the sampled acoustic bass seemed to lose much of its high-end snap.

After moving things around a bit, I defaulted to relying on just a heavy curtain in my right-hand window, and moved that trap to a stand on the right, and parallel to the microtrap on the left. Now, imaging and clarity were great—the "front" of each instrument, including the bass, was clearly defined. In more exposed moments on the track, the beautiful Ron Carter-style growling vibrato on the instrument shone through. The sparkle present in the Primacoustic set was replaced by well-defined but velvety highs. Ultimately, this smooth high end would sit well with long mixing and tracking sessions, in which overly present treble can be fatiguing.

The measurements from ARC didn't necessarily support my perception, however; if anything, dips and bumps in the amplitude of frequencies over 200Hz were slightly less dramatic, but only faintly so. In any event, I was satisfied with the resulting transferability of the mix across playback systems.

Pairing RealTraps and ARC was somewhat more listenable than with the Primacoustic treatments, but I heard no significant difference between using both and using RealTraps alone. Apart from a noticeably lower amplitude overall, which was probably just the position of the ARC plug-in's trim knob, I couldn't hear any perceivable change in timbre or image.

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Auralex

auralex.com

As with the other manufacturers, I sent them a mockup of my room, but I also filled out their room analysis survey at their website. Here, you outline the purpose of your room, the typical music you record, the dimensions, and so on. You also profile your room's acoustic symptoms and submit a diagram. Auralex then develops a custom treatment strategy based on your needs, budget, and visual aesthetic. I received a dozen two-foot square, one-inch-thick Sonolite panels, which are made of fabric-wrapped acoustic foam and mount on walls or ceilings to tame reverb, ringing, and flutter echo; a pair of ProMax portable broadband absorbers—large foam panels on stands (they serve as bass traps in my setup, but you can deploy them as isolation for tracking vocals and acoustic instruments); and a box of four bamboo Peak Pyramid diffusors.

Auralex had sent me detailed placement instructions for everything (download the PDF at keyboardmag.com/july2012). Putting everything together was simplicity itself. In a couple of instances, however, placing the Sonolites required a few detours from their plot, which had no detrimental effect on the overall treatment plan. Mounting the Sonolites was a breeze, thanks to the double-sided adhesive pads provided; I even removed and repositioned them once or twice when my measurements were a little off with no damage to the walls (see Figure 3).

Fig. 3. Auralex Sonolite pads on the walls surround a ProMax Absorber on a stand. My monitors sit on Auralex MoPADs, which decouple them from the desk and preserve low end.

The ProMax Absorbers were easy to assemble. Each absorber is halved and dovetailed together around a cylindrical insertion space for mounting on the provided mic stand. This provides some

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flexibility in adjusting the height of the foam business end of the absorber.

I arrayed the Peak Pyramid Diffusors above my head, slightly in front of the overhead fan with each pyramid pointing 90 degrees away from its neighboring piece; according to Auralex, this helps disrupt overhead reverb and harsh reflections without completely deadening the space. The Pyramids were too heavy to mount with adhesive; the job called for drywall anchors for my ceiling. I'm not terribly handy with a drill, so I pressed my wife into service. (She can set up a mean patch bay, too.) Handily, Auralex provides the mounting anchors and screws.

When the dust and drywall cleared, I was rewarded with a remarkably clear and consistent sweet spot with burnished highs, a distinct mid-range, and clear bass. During denser moments, you could really make out the growling vibrato on the acoustic bass, and more importantly, its distinctive envelope, rather than the tonal thud I used to hear when things got busy. I could even hear the release samples during more exposed passages. A gorgeous pedal-steel-type pad from Spectrasonics Omnisphere retained its character amidst mandolin tremolos, acoustic guitars, a swirling phased Rhodes, and a sawtooth pad. In my untreated room, that would've been a recipe for the steel to get lost in the sauce. It was easy for me to carve out space in the mix for each instrument. Walking from left to right in front of my desk, the sweet spot was not nearly as broad as the Primacoustic treatment, but broad enough to invite a collaborator or two.

ARC results explained much of what I heard in the high end above 2kHz, whose divergences from the ideal flat response were minor—and very consistent over both channels. Mixing with ARC active proved to be a decent pairing in this instance. I enjoyed a bit of a wider sweet spot marked by more consistency in the bass. Clicking on ARC's Full Range Bass Correction added a bit more bottom without smearing the notes.

Conclusions

The Primacoustic London Kit is a class act. Attractive as well as effective, it can easily blend into a home studio without looking out of place. Most importantly, it provided a balanced frequency response throughout an impressive amount of area around my central listening post. Realtraps offers robust and reasonably priced solutions for the home studio. I can't emphasize enough how crucial it is to be able to adapt your room conditioning to the minute developments that can affect small spaces that are pressed into service as recording studios. Auralex provides a comprehensive set of affordable tools for room treatment. Once again, the modular design is a tremendous boon to small project studios where you're often moving things around.

No room treatment product is an end-all solution. A glance online at each manufacturer will reveal an incredible variety of treatments for every nook and cranny in your room, but don't go to the point of anechoic overkill—no musician likes a completely dead room.

The concept of a room with a perfectly flat response is a myth. What should matter are your ears. In each case, I was able to get a better aural picture of each sound's stereo placement, timbre, and loudness in my mixes than I had when I had started. I mixed, tweaked, and adjusted with a solid idea of what my tracks *really* sounded like—resulting in a more consistent listening experience when I was done. ♫

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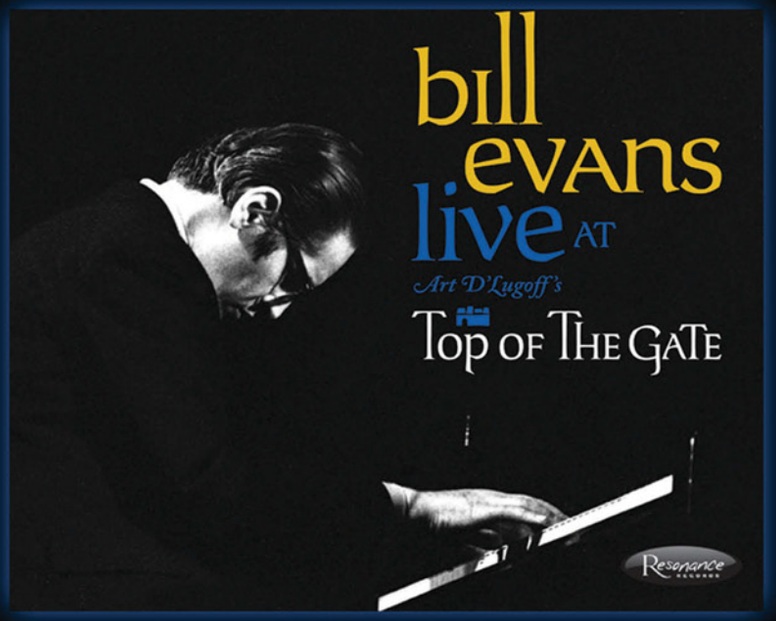

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SAMPLE LOGIC Synergy X

BY JOHN KROGH

SAMPLE LOGIC HAS BEEN GOING STRONG FOR THE PAST COUPLE OF YEARS, producing a number of high-caliber collections aimed at composers-for-media and musicians looking to add a modern cinematic edge to their tracks. Though Sample Logic is still a relative newcomer, its libraries have quickly gained critical acclaim and permanent positions in the sound palettes of many A-list composers and producers. For Synergy X, the company has returned to one of its earlier products, Synergy (reviewed Dec. '08 by yours truly), and given it a major overhaul both functionally and sonically, adding an inspiring level of customization and tweakability to the instruments and boosting the sonic quality to new heights.

Sounds

Synergy X is a Kontakt-based library/instrument that weighs in at just over 20GB of sampled material, with the library divided between individual instruments and multis, which are stacks of instruments assigned to the same MIDI channel to create a composite sound. Much of what I wrote in 2008 remains true for Synergy X. The instruments come in seven categories: Ambience, Bass, Drums, Impacts, Melody, Pads, and Rhythms, and each has been moderately expanded with patches that are variations on the original material. For example, whereas the original version may have a single creepy texture, in Synergy X that texture may have several variations, with one offering rhythmic modulation or character and another radically EQ'ed and effected. In almost every case, EQ and dynamics processing give the original presets a new lease on life, imbuing them with a level of hi-fi polish that the original instruments lacked. I was surprised by the improved sonic quality across the board.

Multis have also been expanded with 53 new presets in three categories: Construction Beds, Instruments Stacks, and One Note Glory. Most of the new multis comprise between five and nine instruments to create a composite that typically includes several rhythmic parts, either loops or pulsating harmonic/melodic material, paired with impacts, pads, and bass/foundational sounds. In many cases, incidental sounds and miscellaneous ear candy are mapped to the higher and lower registers on the keyboard, with the main layered sound mapped to the middle. This lets you get a groove going or play a texture from the middle, and then add interesting musical gestures with the sounds at either end of the board. In practice, that proved to be very effective for writing near-finished cues in record time. It's exactly that kind of musicality and forethought that makes Synergy X more than a collection of sounds—it's a creative and compositional partner.

Graphically, the interface has been redesigned to offer an impressive array of sound-shaping controls. Visually, it's a cross between something from an *X-Men* movie and Avid's orange-plated Eleven Rack. The new look and functionality is made possible via Kontakt's scripting language, which lets developers customize their instruments to provide specific functionality that's otherwise only accessible by digging into an instrument's edit mode. In the case of Synergy X, a consistent interface has been implemented, with dedicated sections for EQ, dynamics, reverb, delay, lo-fi, distortion, and other effects, as well as the arpeggiator. Additionally, instruments based around looped audio samples feature a step editor for adjusting volume, pitch, pan, and filter cutoff settings for each slice within a loop. There's even a button for randomly generating new parameter values. I haven't seen this kind of depth and programmability from any other Kontakt-based product.

Snap Judgment

PROS Fresh, inspiring instruments and multis that cover wide musical and emotional territory. Deftly programmed multis showcase creative possibilities. Highly programmable.

CONS No user manual yet. Instruments can't yet be opened in Kontakt's edit mode.

In Session

With just over 20GB of content and more than 1,600 presets, Synergy X is a large collection that could easily take weeks to sift through to decide which sounds to include in your template or tag as favorites. I suspect that many original Synergy owners never dug deeply into the wealth of presets, which is why the new multis are so beneficial. They're deftly programmed to combine complementary sounds in musically useful and creative ways.

In the process of auditioning the new multis, I soloed each instrument to hear how it contributed to the overall sound, and through that I discovered many more gems that I'd previously left unearthed. Adding to the inspiration factor, the preset names make obvious blockbuster references: "Blade Walker," "Tatooine Pad," and "Tron Racer," to name three.

I have a couple items for the wish list. For starters, a lot of the looped material is presented as one- or two-bar patterns; I'd like more variation, as some of these can get repetitive. More four- and even eight-bar patterns would be welcome. Also, there are no velocity-switched multisamples, and because of that many of the acoustic instruments (*e.g.*, ethnic flutes, strings, and mallets) are lacking in dynamics. Lastly, the instruments can't be opened in Kontakt's edit mode. While the interface provides a ton of tweakability, I'd like to get under the hood more deeply. According to Sample Logic, they're awaiting a bug fix in Kontakt that will make this possible. You still get plenty of tweaking in the Synergy X interface itself. None of this is a deal-breaker, but it's worth noting that Synergy X's strengths are its textures, atmospheres, and rhythmic material, as opposed to deeply multisampled musical instruments.

Key Info

FORMATS AU, DXi, RTAS (Pro Tools 8 and later), VST, plus standalone.

SYSTEM REQUIREMENTS *Mac:* Latest version of OS 10.6 or 10.7, Intel processor. *PC:* Windows 7 with latest service pack. *Both:* 2GB RAM, Native Instruments Kontakt Player 5.0.2 or later (free) or full version of Kontakt soft sampler.

Bottom Line

A comprehensive one-stop collection for all things "modern cinematic."

$399 direct | $60 upgrade from earlier version

samplelogic.com

Conclusions

Synergy X is an impressive redux on what was already a stellar collection of sounds that blurs the lines between music and sound design. The $60 upgrade is a no-brainer for existing Synergy users. For anyone looking for a high dose of inspiring cinematic sounds, Synergy X should be at the top of the shopping list. ♫

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MOOG MUSIC Minitaur

BY FRANCIS PRÈVE

IN THE MID-'70S, THE MOOG TAURUS BECAME SYNONYMOUS WITH BIG, BEEFY bass. Designed as a one-octave pedal controlled synth, the Taurus was quickly embraced by rockers—like Pink Floyd, Heart, and Rush—who used it to bombard arenas with subsonic mayhem. While it was capable of a full, five-octave range, the name of the game was bass—and lots of it. Then, around 1980, the Taurus II upped the ante by expanding the pedal range to 1.5 octaves and replacing the original synth engine with the one found in their entry-level lead synth, the Rogue.

Fast forward to the 2000s. In 2010, the revitalized Moog Music resurrected this epic bass synth, aptly dubbing it the Taurus 3. Updating the design cues from the original Taurus and adding MIDI, USB, and a slew of modern amenities, the Taurus 3 became a hit with the analog set, due to its double-fisted haymaker of growly filters and added low-frequency oomph. We loved it when we reviewed it in our October 2010 issue, which also feted the 40th anniversary of the Minimoog. So when Moog announced their new Minitaur bass synth, which essentially puts the Taurus 3 sound engine into a wedge-shaped tabletop form factor, we got out the drool buckets.

Architecture

The first thing that caught my attention about the Minitaur is its one-knob-per-function front panel. As the owner of numerous analog synths both vintage and new, there's a visceral joy that comes from reaching directly for the parameter you want to tweak and going for it. No clicking through menu pages, opening a software editor, or even having to tap a button to select what some shared-function knob does—just pure playability.

The parameters, while basic, cover all of the essentials for bass synth riffs and then some. Each of the two oscillators delivers the classic Moog sawtooth or square waveforms, which have a character all their own. We were a tad bummed by the lack of pulse width control, but that's a quibble here.

Oscillator 2 is tunable in either direction by about an octave, which is wonderful for adding upper-mid bite or whipping up punchy Deadmau5-style fifths. Each oscillator has its own level control for fine-tuning the balance.

Moog didn't skimp on the filter either. This is definitely *the* legendary Moog filter with its slightly overdriven character and creamy roll-off that lets the Minitaur go toe-to-toe with its bigger brothers without breaking a sweat. The resonance is juicy, too, delivering those classic Rush sweeps when the envelopes are set just right.

Speaking of envelopes, there are two: One for the filter and one for the amp. In a nod to the original Minimoog, these are attack-decay-sustain affairs, with a switch that ties the release segment to the value of the decay segment. In practice, they deliver everything you'd need from a standard ADSR, with a little less fuss.

Rounding out the engine is a single, triangle-wave LFO, which can modulate both the oscillator pitch and the filter cutoff (great for dubstep *wub-wub*) simultaneously, with separate amounts for each.

Snap Judgment

PROS Fully analog. Incredible bass. Every parameter has its own knob, which sends controller data over MIDI and USB. External input for processing all kinds of audio. Included software editor allows saving and loading presets via USB.

CONS Pitch range capped one octave above middle *C*. No variable-width pulse. No preset memory if not connected to a computer.

In Use

The Minitaur includes MIDI, USB, analog gate, and control voltage (CV) inputs for pitch, filter, and volume, so it snaps right into any rig with zero hassle. Every knob sends and receives MIDI continuous controller info, so as I was testing it with Ableton Live, I incorporated knob twists and turns into the sequence clips without a hitch. Morphing bass sounds and mid-range comping riffs were a breeze to conjure—and the low end on the Minitaur was truly astonishing. This is a muscular little powerhouse.

While the Minitaur has no onboard memory for presets, a nifty software editor captures the parameter settings and allows for preset storage on your Mac or PC. This lets you store your sound design work, if only for studio use.

I quickly became engrossed in the Minitaur, using its external audio input to process my other synths, much the same way I use the Moog Slim Phatty in my rig. If you're looking to

A knob for every function makes dialing in sounds fun and quick.

You get 1/4" analog CV inputs for pitch, filter cutoff, and volume.

route a soft synth like Ableton Operator or Native Instruments Kontakt through a Moog analog engine, this is by far the most cost-effective solution, period. Audio output is monaural, not stereo, but that's hardly a deal-breaker for synth bass, which you usually want panned straight up the middle in a mix anyway.

Then, as I was riffing on a definitively electro sawtooth fifth patch, I discovered that the Minitaur cannot create any pitches higher than one octave above middle *C*. At first I thought the ceiling was in the MIDI realm, so I switched to playing via analog CV, because it's all just voltage, right? Same thing. An email to Moog revealed that the Minitaur's oscillators use a much more voltage-intensive design than most analog synths, where a one-octave rise in pitch requires one more volt of CV. On the Minitaur, voltage has to double to raise the pitch an octave. Moog preferred the sound of this design for bass, so factor in the 12-volt power supply, and that explains the limitation. The Minitaur's bass response was subjectively beefier than my trusty Slim Phatty (which has no such pitch ceiling), which bears Moog's claim out.

Conclusions

The Minitaur nails the legendary Taurus vibe. On the plus side, you get a knob for every function (you don't on the Phatty) and a software editor for storing your patches on your computer.

Bottom Line

Both a badass bass beast and the most affordable Moog yet.

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However, if you're looking for anything more than a pure bass synth, the pitch ceiling just might be a deal-breaker if you're a budget-minded keyboardist who's craving a "my first Moog." In that case, I suggest cutting your beer budget for another couple of months and saving up the extra two bills for a Slim Phatty.

That said, the Minitaur is an incredible synth for subsonic and midrange riffs—and the external audio input is a godsend for processing audio through a real Moog filter and amp. If you're pinching pennies and have a jones for authentic Moog bass, you should be bullish about the Minitaur. ♫

SOUNDCLOUD

Original audio examples.

keyboardmag.com/july2012

Fig. 1. Padshop's interface is easy to navigate and edit. Voice controls are at the top, with the granular engine underneath. The white vertical lines indicate grain playback location.

STEINBERG Padshop

BY CRAIG ANDERTON

WHILE KNOWN PRIMARILY FOR CUBASE, STEINBERG HAS INTRODUCED SOME excellent instruments—HALion, Xphraze, Groove Agent, and others. As the name implies, Padshop is all about pads, but these aren't your father's choirs and strings. Padshop uses granular synthesis, which is like *musique concrète* on a subatomic level: Instead of cutting up little pieces of tape and putting them back together in a different order, Padshop cuts up samples into tiny "grains" and plays them as streams of sound. Playback can jump around sequentially or randomly, and create rhythmic patterns. Thanks to micro-level crossfading, you don't hear any clicks as one grain transitions to another.

Snap Judgment

PROS Rich, evolving pads that would be difficult or impossible to create by other means. Inexpensive. Not difficult to learn but plenty of options. New approach to synthesis.

CONS VST3-only. No standalone mode. Can't load your own samples.

Overview

Padshop incorporates a dual-layer granular synthesis engine, filter section, and modulation matrix for the onboard sources (two envelopes, two LFOs with six waveforms including sample-and-hold variants, and the step modulator shown in Figure 2 on page 68). You can also apply modulation from other MIDI controllers, including VST Note Expression from Cubase. Each granular layer is completely independent; switching layers is almost like switching between two instances of Padshop.

While it doesn't affect the sound, props to the functional yet aesthetic panel graphics, and the obvious, ergonomic user interface.

The Granular Engine

Other than simply calling up one of the 400+ presets, sound generation starts with loading a sample into each of the two engines; you can opt to use just one layer, or load the same sample into both. You can't load your own samples, but

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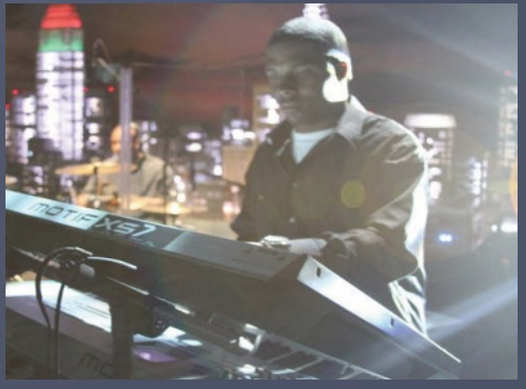

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Anthony Miller
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Fig. 2. The Step Modulator (two to 32 steps) is a welcome addition to the usual modulation sources.

don't expect to run out of options given the 329MB of included content. You then specify the sample range (from which the grains will be derived), the base position within that range, whether to randomize or offset the playback range, and set the "spread" of the location of the grains that play back (further apart, or closer together). You can also choose whether to loop the sample, and the speed with which grain playback progresses.

In words, this all sounds abstract, as you can't reference a conventional oscillator architecture; the best way to understand how these parameters affect the sound is to play with them and listen to the results.

There are also more general settings that relate to grain playback, and settings that affect the grains themselves. We'll avoid going into a lot of detail (this is a review, not a manual), but suffice it to say that the various granular synthesis engine options allow for major sonic variations that are far removed from the usual freeze-dried sound of standard sample playback. It's the variations of grain motion, grain shape and length, playback parameters, and in particular, randomization that create the compelling, evolving, non-repetitive sound of Padshop.

It's easy to "tame" the pitch of the synthesized sounds by defining pitch based on that of the original sample, or by editing the grain playback parameters to impose a sense of pitch. You can do random pitch changes and detunings, and transpose up or down one octave.

While the grain engine is exotic territory, filtering returns to the familiar. The filter has a dedicated ADSR envelope (with velocity control over amount), key follow, and 12 filter types. In addition to cutoff and resonance options, you can introduce one of four distortions: tube, solid-state, bit reduction, or sample rate reduction (fixed, or with key follow so the rate changes as you play up and down the keyboard). These add a very useful element when you want more "radikal padz."

Sounds

The range of sounds is very wide—from the clarity typically associated with FM synthesis, to warmer, more analog sounds, to sounds that defy conventional synthesis references. They're ideal for soundtracks, chill, trance, ambient, and much more—this really is your one-stop shop for pads. Granted, Padshop is pretty much about pads—but they're so stellar and editable that it greatly expands that genre's boundaries. The presets are also not throwaways; Padshop will keep you happy for a long time with just a tweak here and there of the supplied library. Sometimes turning just one control will create an entirely new and wonderful sound, but if you like it, save it! A few more tweaks and you might not be able to get back to it again.

Conclusions

I suppose by now I *should* be jaded by synthesis—but then something like Padshop comes along. It's unfortunate it's VST3-only, but thankfully Steinberg didn't code the plug-in to work only in Cubase. If you want to experience something new, different, and very cool, Padshop offers up sounds you probably haven't heard before—while emphasizing there's more to "sample-based" than pianos, strings, and drum loops. Even if you're not into pads, playing with Padshop might change your mind. If you *are* into pads, you'll find Padshop as useful, engaging, and downright beguiling as I have. ♫

Craig Anderton is Executive Editor of Electronic Musician *magazine and Editor in Chief of HarmonyCentral.com.*

Key Info

SYNTHESIS TYPE
Granular with filters, envelopes, and matrix modulation.
GRAIN STREAMS 8.
SYSTEM REQUIREMENTS
Mac: OS 10.6 or 10.7. *PC:* Windows 7. *Both:* Dual-core CPU, 700MB free disk space, VST3 host program (32- or 64-bit), Internet for activation.
COPY PROTECTION
Steinberg eLicenser USB dongle.

Bottom Line

More than expected for the price. The sounds are evocative, sophisticated, and novel.

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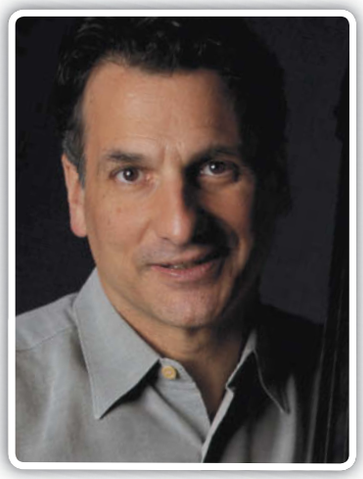

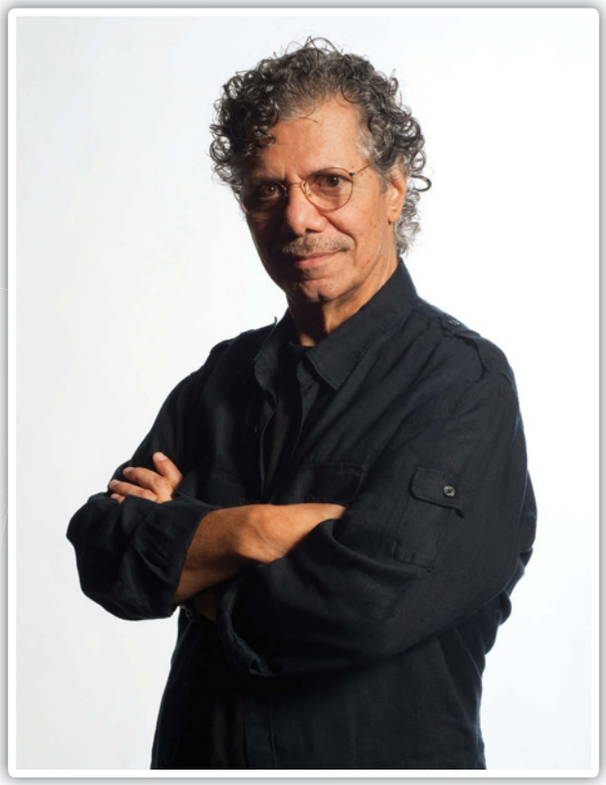

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PROPELLERHEAD Figure

BY FRANCIS PRÈVE

TALK ABOUT VIRAL. WHEN PROPELLERHEAD REVEALED THEIR LATEST IOS APP, Figure, it seemed like every tech blog on the Internet caught fire. Based on buzz alone, it looked like Propellerhead had cracked the code for bringing electronic groove production to the masses.

While Figure is designed for iPhone, it's of course compatible with the iPad. In fact, it's better on the iPad because you have lots more room for gestures. Every Figure groove is exactly two bars long, with a little progress bar at the top of the screen to let you know where you are. You have three tracks—drums, bass, and lead—each of which you can customize and play in real time.

Creating your own drum track is super-intuitive, even if you've never touched a drum machine. Once you've selected a kit from the 15 or so acoustic and electronic options, you have four drums: kick, snare, top part (shakes, hi-hats), and a percussion element. Each drum has a circle at the top of its lane; dragging on it changes the number of hits in the pattern. Even with odd amounts, hits are always rhythmically correct. You record the drum by running your finger along its vertical lane, which morphs the sound and/or volume.

The bass and lead tracks work similarly. There are two panels for each instrument: Pattern and Tweaks. Pattern lets you play a riff using one of ten rhythms, ranging from simple to complex. Dragging over the X/Y pad plays different notes, you can set the number of notes in the scale, and it's impossible to hit a "wrong" note. Holding and sliding your finger lets you play continuous riffs, whereas tapping different areas gives you more control over spaces (rests) in your groove.

The Tweaks panel accesses two or three different X/Y pads, each appropriate to whichever instrument is up. Examples: The "Analogsq" bass includes a filter pad (cutoff and resonance) and a "Tweak Me!" pad for bounce and pulse width. The "Pearl Lead" synth includes three pads: filters, flutter (an LFO effect), and delay.

Globally, you can add shuffle, adjust tempo, change key (even after you've recorded your groove), and even add pumping compression to the final mix. What you can't do is save your composition or export audio. If you quit Figure and restart it, you *can* pick up where you left off, but to get audio from Figure to your DAW, your only option is to record in real time from your iOS device's output. But all this instant groove-making fun for a buck? Go Figure! ♫

Snap Judgment

PROS Requires zero musical skill to make cool grooves. X/Y pad interface for melodies and twweaking. Great collection of Reason-based synths and effects. Only a buck.

CONS Musical doodles can't be saved or exported.

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Stein in his studio. ***Left stack, top to bottom:*** **Korg R3, ARP Odyssey and Pro-Soloist, Moog Source, ARP Omni 2, Roland Jupiter-80.** ***Middle stack:*** **Kawai K5000S, Roland Juno-106, Sequential Circuits Prophet-5, Minimoog Voyager.** ***Right stack:*** **Korg Mono/Poly, Oberheim Matrix-12.** ***Rack:*** **Access Virus C, Arturia Origin, Korg MS2000R.**

5 THINGS I'VE LEARNED ABOUT Composing for TV

BY BILLY JAY STEIN

I'VE BEEN COMPOSING MUSIC FOR TELEVISION FOR OVER 15 YEARS, WRITING thousands of tracks for shows like *Pawn Stars* and *Sex and the City* among others. Before that, I was in a band called the Hatters, touring and recording on Atlantic Records. I quickly learned that TV is a completely different beast than making records. Here's why, and what I know about how to succeed at it.

1. Give 'em What They Need, Not Just What They Want

Why? Because most TV producers and directors aren't actually sure what they want. Often, they'll tell you to make the music sound like this song or that artist, and then you're on your own. Don't overthink at this stage. Make simple demos with lots of options—and get ready for rewrites.

2. Work Fast, Work Smart

Deadlines in the TV world are brutal, and the quantity of material for just one cycle of episodes could fill five or six album-length CDs. Once you know the sound of the show, crank it out. You're not making *Pet Sounds* or *Sgt. Pepper*. You're a gun for hire, not an artist with limitless time and money.

3. Don't Overproduce

Listen to music on TV. Most of the tracks are "beds" under scenes. They're unobtrusive and often at a low volume in the mix. Keep tracks simple. Less is more. Create a mood and don't overdo the melody, as a strong melody can distract from a scene. Finally, make sure the music has a "button:" a definitive ending as opposed to a fade-out.

4. Libraries = Money

With the explosion of programming and networks, budgets for TV music are miniscule. Many shows, especially on cable, rely on production music libraries. In these cases, composers can make money on royalties paid out by performance rights organizations such as ASCAP and BMI. One track can end up on ten shows or more. The royalties are small, but over time they can add up to significant income.

5. Free Is Not a Dirty Word

Some production libraries give music to TV shows at no cost. That's how competitive the marketplace has become, and it's how my own production music company, Strike Audio, operates. But as long as there are royalties to be paid, composers can still make good money when a show chooses their tracks. ♫

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